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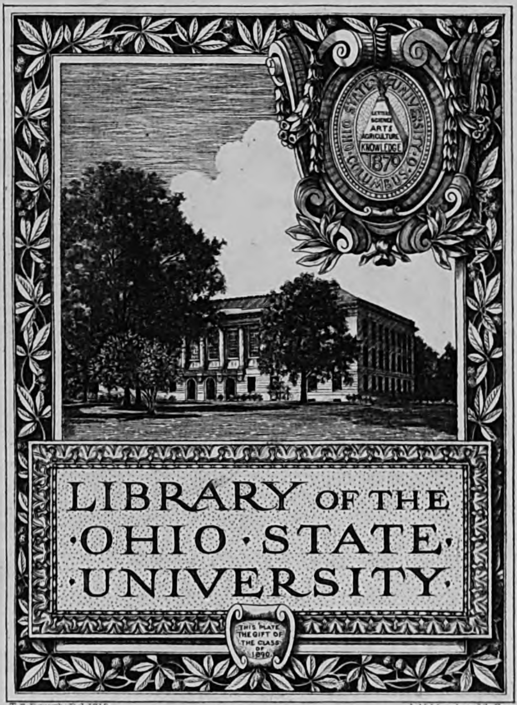

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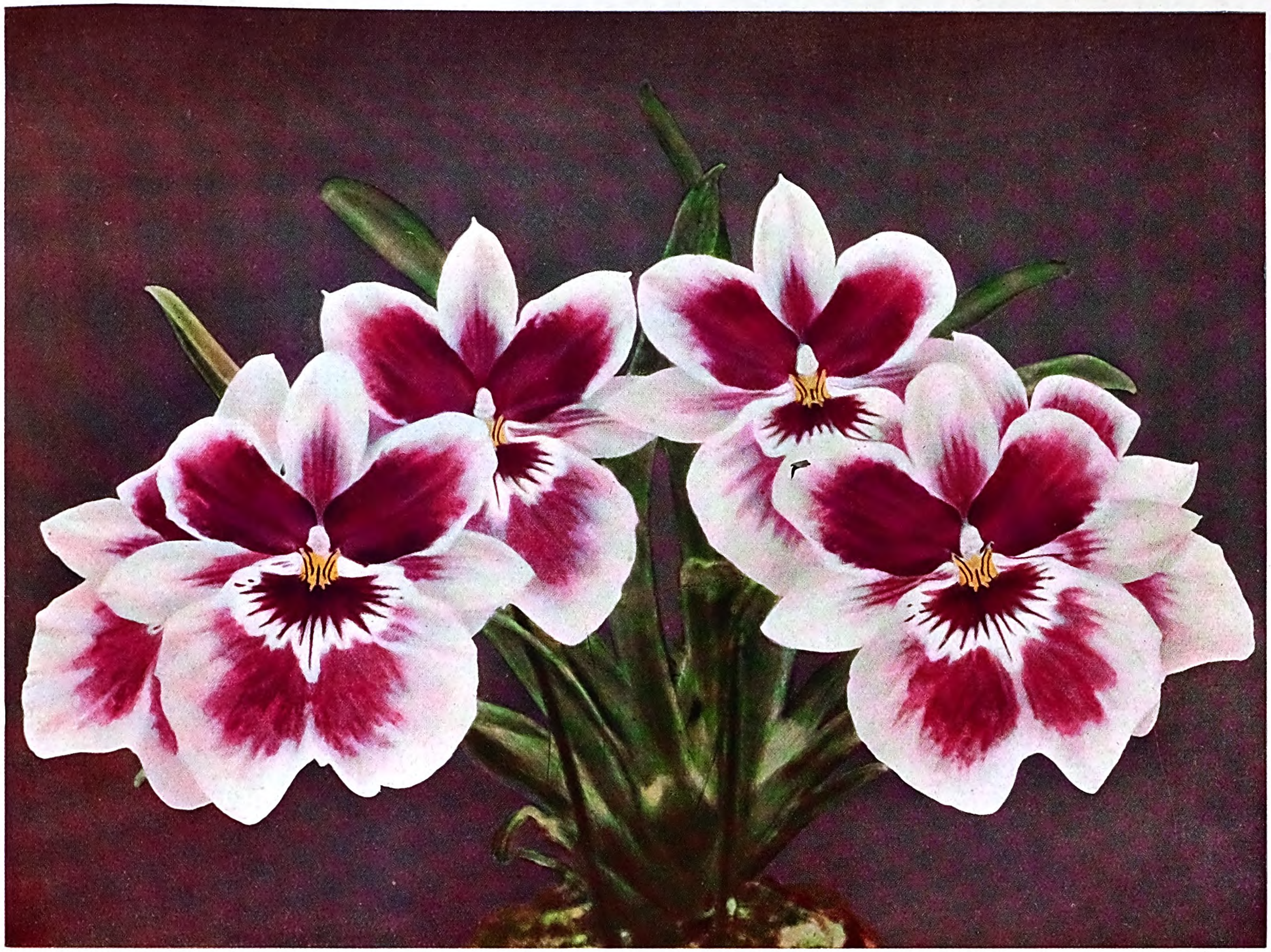

MILTONIA PRINCESS MARY, WESTONBIRT VARIETY.

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Miltonia Princess Mary, Westonbirt var.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62·6°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 3, 10 a.m. (Greenwich time). Bar. 29·8. Temp. 64°. Weather, fine.

Leaf and Fruit.

IT is a commonplace with gardeners that although fruit is only produced by the manufacturing activities of leaves, yet too many leaves spoil the fruits, even to the extent of checking fruitfulness altogether. To prevent this misfortune, growers have from time to time adopted many and varied devices. When Tomato plants are making too much foliage, a part of each leaf is removed; when Coffee refuses to flower, the branches, so we are informed, are twisted or broken so as to check growth. A nice balance is therefore necessary if leaves are to do their work of supply and fruits are to make full use of the manufacturing activity of the leaves. So far, we are on safe and common ground, but when we seek to advance a little further towards a surer knowledge of fruitfulness and its relation to leafage, we find the way barred by dark ignorance. Why should a vigorous development of leaves prevent or check blossoming? Is it that exuberant leaves supply too much of the good thing which flowers require for their development? Or is it that when leaves grow beyond a reasonable amount they do their work of manufacture less efficiently, and so fail to supply the potential fruit buds with materials without which these buds cannot mature? That some fine chemical distilled by the leaf and required by the blossom will prove to be the *deus ex machina* of fruitfulness, we have no doubt. In the meantime, however, a notable and interesting contribution to this question of leafage versus fruitfulness has been made by Mr. Thomas Swarbrick* in the ninth contribution on the subject of "Factors Governing Fruit Bud Formation." Mr. Swarbrick, who began these investigations in collaboration with Mr. C. E. T. Mann, set himself the task of ascertaining whether fruitfulness and unfruitfulness of Apples are related to any fluctuations in leafage. For this purpose he chose two standard Apple trees of the variety Court Royal, one of which was enjoying an off year in 1925, and the other of which was preparing to bear a full crop in that year. For Mr. Swarbrick recognised that the biennial habit of bearing manifested by so many varieties of Apples might be turned to advantage in his enquiry into leafage and fruitfulness. Accordingly, since "Science is measurement;" the author set himself to count the number and measure the areas of leaves on a given large number of spurs borne on corresponding branches of the "on" and "off" trees. This he did in June in two successive years, viz., 1925 and 1926. The results are of great significance. A tree busily engaged in fruiting behaves as though it were forgetting its other duties. It bears on its spurs only about half as many leaves as it does when blossoming and fruit formation are not engaging its energies. Nor is this the full measure of the neglect with which it treats its foliage department; for during the "on" year the area of such leaves as it does bear is so little as a quarter of that produced during the "off" year when, there being no fruits to preoccupy the energies of the barren tree, it can devote them all to leaf formation. Now Mr. Swarbrick produces evidence which suggests that if the leaf area in the neighbourhood of a spur is too small, that spur does not develop a fruit bud. Whence it seems reasonable to conclude that biennial bearing of Apples is no chance peculiarity, but one which is determined by the poor leaf development which attends full fruitfulness. Owing to deficiency of leafage, fruit buds are not developed and hence the year of plenty is succeeded by a year of scarcity. In that year, however, the tree redresses the balance, makes leaves in plenty; these leaves permit of fruit-bud formation, and so a fat year succeeds the lean one. The moral would seem to be "take care of the leaves and the fruits will take care of themselves." In other words, adopt such means of cultivation and manuring as will encourage the leaves when most they need encouragement. It would seem as though a biennial tree should receive biennial treatment, a liberal supply of nitrogenous fertiliser applied early in the "on" season, when leaf growth is beginning, should stimulate a more vigorous leaf development and perchance secure a sufficient leaf area to ensure the formation of fruit buds. Should this prove to be the case, the biennial habit would be overcome, at least to some extent, and the Apple made to bring forth fruits in due season and no longer to show the caprice of "on" and "off" years.

Our Coloured Supplement Plate.—Miltonias are extremely popular Orchids at present, and the numbers of hybrids or varietal forms of hybrids increase every year. The introduction of such brilliantly-coloured hybrids as M. William Pitt has added interest to the raising and cultivation of these handsome, free-flowering and fairly easily-grown plants, and opened up great possibilities of future colour developments. Miltonia Hyeana commemorates M. Jules Hye, and was the result of crossing M. Bleuana with M. vexillaria, and when M. Hyeana was crossed with M. Bleuana the elegant M. Princess Mary was produced. Several varieties of this hybrid have been exhibited, and one of the best is M. Princess Mary, Westonbirt variety, exhibited by Messrs. H. G. Alexander, Ltd., and portrayed in colour in the Supplement Plate presented with this issue.

Compton Verney.—The late Lord Manton's beautiful and famous estate of Compton Verney, near Kineton, Warwickshire, extending to about 5,000 acres, was sold by auction on June 25 for £79,500, to two purchasers, Mr. T. J. Wilson, of Grosvenor Square, London, and Mr. G. Morgan, of New Lodge, Reigate, Surrey. Compton Verney was bought by the first Lord Manton, then Mr. Joseph Watson, in 1921, from Lord Willoughby de Broke, in whose family it had been since the days of Henry V. The house, which is exceedingly fine, stands in a richly-wooded park containing two sheets of water. The grounds were planned by "Capability Brown," and Compton Verney was among the "show places" of the last century. It is not known what the present owners intend to do with the house and estate, but apparently they do not intend to occupy it personally. Many of the farm tenants were present at the sale, and were naturally anxious to know whether they might expect to retain their security of tenure. They were assured that there was no intention to disturb them.

Tree Surgery in the United States.—During the last half-a-century, a specialised occupation has grown up in the United States in connection with the fast-growing horticultural industry—that of "Tree Surgery." In many parts of the States, new gardens and estates were created—and are still being created—on bare, virgin land, without a vestige of forest, where every tree which is to form the most effective part of the landscape has to be especially planted. Such trees are valuable, and their value increases with their growth; this fact has occasioned the establishment of a number of firms specialising in the care of trees, who visit estates, inspect the trees carefully, advise on their condition, and carry out any remedial treatment that may be necessary. On estates that may possess really old trees, this procedure is doubly necessary, and many ancient Oaks and other forest giants have been saved by the timely filling of holes and other "surgical" treatment. The best of the firms have regular laboratories, presided over by qualified botanists and entomologists, who carry out in a scientific manner every process of pruning, spraying, feeding, etc. The month of June is found to be a good time for overhauling the trees, as sufficient time has then passed since the dormant period for them to show outwardly any signs of ill-health.

Legacies to Gardeners.—The late Miss Maria Margaretta Horrocks, of Ribblesdale Place, Preston, who died on March 25, 1929, left £600 to her gardener, Mr. Thomas Hodson, if still in her service.—The late Sir James Atkinson Hosker, of Christchurch Road, Bournemouth, who died on February 13, 1929, left the income from £1,000 debentures to his gardener, Mr. William Henry Collier and his wife, or from one-half this sum to the survivor.

Strawberry Disease in Scotland.—The alarming reports coming from the southern districts of Scotland concerning the ravages of a mysterious malady which first appeared among Scottish Strawberry crops some few years ago, is naturally causing no little perturbation to growers farther north, and especially in Aberdeenshire, where a large acreage is under Strawberries. Incidentally, it may be noted here that Mr. W. E. Gladstone, the great Victorian statesman, once drew special attention in one of his speeches to the lucrative work Aberdeenshire small farmers and crofters found in the cultivation of the Strawberry, and advised others to follow the example. The speech was not at all to the liking of the regular Aberdeenshire growers, as they feared the incentive to go and do likewise would bring in a host of competitors; and it did so. But the lottery—it can be characterised as nothing else—of Strawberry raising quickly brought its own cure. The novice very soon dropped the enterprise. But to-day many of the most experienced growers are suffering intensely from the ravages of the mysterious malady which is devastating many south of Scotland Strawberry fields. Happily, so far, there is no sign of the trouble in Aberdeenshire, where a big acreage, especially in the Deeside valley, is under this crop. Until the third week in June the crop was doing splendidly, and picking should be in full swing by the end of the second week in July—fully ten days earlier than is usually the experience. The glorious sunshine prevailing of late, so dear to the Strawberry plant, has worked wonders, but a little more rain would be welcomed and be most conducive to the development of the berries.

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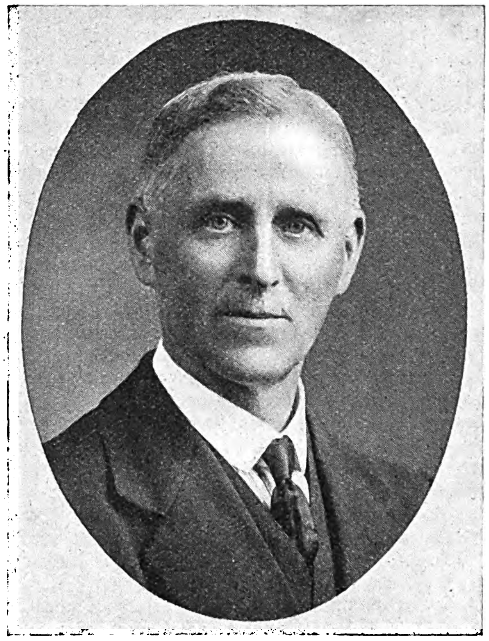
* "Some Observations upon the Leaf Area of Spurs in Biennially-bearing Apple Trees." *Annual Report* of the Agricultural and Horticultural Research Station, Long Ashton, Bristol, 1928.

A Garden of Peace.—Mr. H. J. Moore, Toronto, informs us that a great project, viz., that to establish a Garden of Enduring Peace between Canada (and incidentally, Great Britain) and the United States, is to be discussed at the Convention of the National Association of Gardeners of the United States, to be held in Toronto, on August 6, 7, 8 and 9, of this year. Representatives from many horticultural societies and associations will be present and several Canadian and American speakers will give addresses. The project has been approved wherever mentioned and promises of financial support are forthcoming from every quarter. The details of the project, however, are yet to be worked out.

Jealott's Hill.—As agricultural skill is the basis of human prosperity it follows that anything and everything that can be done to increase the skill of the farmer will add to the prosperity of the community, therefore we welcome the addition of Jealott's Hill to the number of research stations where clever scientists and skilled practitioners are combining in efforts to discover ways and means whereby the food supplies of our own land, and other lands, may be increased, in short, intensive cultivation of farms is the aim. Jealott's Hill Research Station is the property of Imperial Chemical Industries, Ltd., but the work accomplished there will be the property of the whole world. The new Station is about six miles from Maidenhead, and consists of about 360 acres of land, up-to-date farm buildings, and finely-equipped laboratories. The whole is under the general direction of Sir Frederick Keeble, to whose foresight and organising ability it is a fine tribute. Under the presidency of Lord Melchett, a distinguished company gathered at Jealott's Hill on Friday, June 28, when Mr. J. H. Thomas, Lord Privy Seal, performed the opening ceremony. Those who accepted invitations included ambassadors from a dozen countries, the Prime Minister of Egypt, the Duke of Montrose, Lord Reading, Lord Birkenhead, Lord Weir, Lord Colwyn, Lord Bledisloe, Sir Henry McGowan, Sir Frederick Keeble, Sir David Milne-Watson, Sir John Russell, Sir David Prain, Sir Daniel Hall, Sir John Farmer, Dr. Bosch, Dr. Hill, Major Chipp and Dr. Darbishire. About seven hundred people, representing science and agriculture in many parts of the world, inspected the premises and the experiment plots, the cattle and the laboratories—the latter are under Mr. H. J. Page, formerly of Wisley—and were entertained to lunch. Lord Melchett expressed the view that the fertilizer industry must be lifted from the realm of faith to the realm of scientific industry, and it was the object of Jealott's Hill to convert faith, through experiment, into profitable practice. Mr. J. H. Thomas followed with a speech that sparkled with humour but kept the practical issues in view. He said he believed in democracy—but an educated democracy; he believed in both capital and labour—but not as opposing forces; brain and brawn must work together for the good of all, therefore he welcomed the advent of Jealott's Hill, with its great financial backing, and its highly trained staff, and felt it a great pleasure as well as a duty to open the station. Lord Birkenhead, Sir David Milne-Watson, Sir Frederick Keeble and Sir Daniel Hall were also speakers at this interesting function. Incidentally, we may add that although Jealott's Hill is an institution devoted primarily to agricultural research, horticulture will not be forgotten, indeed, it is already included, as an experimental orchard is being created, while beauty and fragrance were lent to the ceremony, as the courtyard entrance to the Laboratory building was planted with Heliotropes, and the entrance doors guarded by large blue Hydrangeas.

Mr. J. A. Beresford.—For twenty-five years Mr. J. A. Beresford has been in charge of the gardens of Collar House, Prestbury, Cheshire. His name is a household word among garden lovers for many miles around Manchester, by whom he is regarded as a walking encyclopaedia on all matters relating to flowers and plant life generally. At an early age he entered the gardens of F. R. Curtis, Esq., The Manor House, near Congleton—a delightful residence, afterwards occupied by Sir E. Tootal Broadhurst—and there, under Mr. A. H. Hall (a disciple of that fine old gardener Mr. James McIndoe, V.M.H.) had a thorough grounding in all branches of horticulture, especially the culture of Grapes and Roses. By circumstances of fate, he was, for a short time, left in charge of these gardens while still in his 'teens, and proved himself so capable that he was pressed by his employer to continue in that capacity, even at that youthful age. Mr. Beresford, however, refused the tempting bait, for he realised what a great deal more he had to learn before taking such responsibility on his shoulders. The next few years were spent in hard study and ceaseless work. Everybody said he worked too hard, but he would not believe it, and often, when all his colleagues had finished work, he might have been found in the rock garden or the Orchid house accumulating knowledge that has since been invaluable to him. At the age of twenty-six he became foreman at Collar House, and two years later took over the entire charge, a position he has since held under two families. For nine years, in this capacity, he had as his employer, I. C. Waterhouse, Esq., himself an ardent gardener and keen botanist, and the feeling that existed between them—cultivating plants and studying plant life together—was something more than the touch of nature that engenders kinship. The present owner is R. Moseley, Esq., whose confidence in Mr. Beresford is unbounded, and who fully appreciates the good work done by him, both in the garden and in other directions. The batches of Cyclamens, Carnations, winter-flowering Begonias, Gloxinias, and a host of other things, grown at Collar House, are famed for miles around, as also are the Grapes and, in fact, everything in the garden. As a writer and lecturer on all gardening subjects, no one is more appreciated in the north of England, and those who know Mr. Beresford intimately, appreciate that it is the love of flowers that has kept him so loyal to the gardening profession, for he has repeatedly refused calls to other spheres of labour—the Church, platform, business—but to him gardening is more than a livelihood, or, as he prefers to put it, " man doth not live by bread alone."



MR. J. A. BERESFORD.

A Famous Deeside Rock Garden.—There are many beautiful rock gardens in the north-east of Scotland, but few, if any, can compare with the magnificent rock garden at Glassel House, Aberdeenshire. Situated in the beautiful valley of Royal Deeside, amid enchanting scenery, and famous throughout Britain, this garden is the property of Mr. A. H. E. Wood, who owns Glassel estate. On the kind invitation of Mr. Wood, the city fathers of Aberdeen paid a visit recently to Glassel House, where they were entertained to tea and escorted through the grounds. They found much to admire wherever they went, but the rock garden was a revelation to them. Built on sloping ground of natural rocks, with natural waterfalls charmingly utilised, this garden makes a vivid impression on the onlooker. There are over three hundred different kinds of rock plants, including a superb collection of Meconopses; the lay-out betokens the inspiration of a master hand in the formation of this magnificent ensemble. There was a rumour in Aberdeen some time ago that the Corporation contemplated the construction of a rock garden on a large scale in one of the public parks. If there were any doubts or dubiety in the minds of the authorities, the visit to Glassel House must have completely shattered them. As Councillor Roberts, convener of the links and parks committee, well said, when proposing a warm vote of thanks to Mr. Wood for his great kindness and hospitality, they had spent a perfectly wonderful afternoon. Should Mr. William B. Clark, the worthy Superintendent of Aberdeen's public parks, ever be commissioned to create a rock garden, he will find a wonderful and unique source of inspiration for his task at Glassel House.

Practical and Technical Education for the Glasshouse Industry.—Under the auspices of the Hertfordshire County Council a scheme has been arranged for providing, at the Hertfordshire Institute of Agriculture, Oaklands, St. Albans, practical and technical instruction for the glasshouse industry. It is estimated that there are 3,000 acres of glasshouses in the British Isles, representing a capital investment of fully £10,000,000. Of this area nearly half is concentrated in the Lea Valley, including about 900 acres in Hertfordshire. The industry has displayed great initiative commercially and with regard to marketing and research. The first commercial houses were built about 1880 and the extent of the development is apparent from the area now under glass. For many years grading and packing on approved lines have been practised and now the National Mark has been adopted for Tomatos and Cucumbers. Specialised research was started in 1914 and was originally financed by the growers, but now the Cheshunt Research Station is a recognised research centre doing very important work and receiving Government grants. Recently the Hertfordshire County Council, in co-operation with the Lea Valley Growers' Association, has been responsible for the scheme by which provision is made for instruction and practical training. The Principal of the Hertfordshire Institute of Agriculture is Mr. J. Hunter Smith, B.Sc. A one-year's course of instruction is divided into three terms:—October 7 to December 13, 1929 (ten weeks); January 13 to April 12, 1930 (thirteen weeks); and April 28 to August 2, 1930 (fourteen weeks). Twelve-week courses have also been arranged for those who cannot take the longer course, and these commence on October 28, 1929 and February 17 and July 7, 1930. The charge for residential students residing in Hertfordshire will be £1 15s. per week; for residential students not residing in Hertfordshire, £2 10s. per week. Non-residential Hertfordshire students will pay 10s., and others 20s. per week. Full particulars of this interesting scheme, and prospectuses of the courses, may be had on application to Mr. J. Hunter Smith.

Agricultural Produce (Grading and Marking) Act, 1928.—New regulations in respect of Apples and Pears, in substitution for and revoking the regulations of last year, were made on June 19, 1929. Under the new regulations modifications are made in certain definitions of the size and colour of fruits packed under the National Mark Scheme. Copies of the regulations are obtainable from H.M. Stationery Office, Adastral House, Kingsway, London, W.C. 2, or through any bookseller, price 1d. Packers desirous of being authorised to apply the National Mark to Apples and Pears are urged to apply to the Local Branch of the National Farmers' Union for their county, or to the Secretary, National Farmers' Union, 45, Bedford Square, London, W.C. 1, so soon as possible, in order that the necessary formalities may be completed before the commencement of the packing season.

R.H.S. Gardens Club.—The Annual Outing of the R.H.S. Gardens Club will be held on July 13, when a visit will be paid to the gardens of Ashford, Handcross, by kind permission of Mrs. Lindsay Smith, and later in the day, the garden at Highdown, Goring-on-Sea, will be inspected, by kind permission of F. C. Stern, Esq., C.B.E. The Annual Meeting of the Club will be held at Lloyds Bank Buildings, Worthing, in Mr. J. E. Grant White's office. The party will leave Wisley by motor coach at 8.45 a.m., and will arrive at Handcross at 10 a.m., from whence it will proceed to Worthing, to arrive at 12.30 p.m., when the Annual Meeting will be held. Lunch will be taken at The Arcade Café, at 1 p.m., and at 2.30 p.m. a motor coach will leave for Goring-on-Sea.

Wild Flower Destruction.—Viscount Ullswater, Campsea Ashe, Woodbridge, writes:—"I should be very grateful to any of the readers of your journal, who would communicate to me any instances of the wilful destruction of wild flowers which may have come to their notice."

Imported Potatos Sold as English.—A Liverpool greengrocer was prosecuted by the Ministry of Agriculture recently for contravening the Merchandise Marks Act, 1887, by describing as "English" new Potatos which were shown to be of Spanish origin. These wrongly described Potatos were exposed for sale on May 9, at a time when Potatos from the Scilly Isles were the only British new Potatos on the market, and a purchase was arranged by the National Federation of Retail Fruiterers, Florists and Fishmongers, Limited, who reported the matter to the Ministry. A fine of £10 was imposed, with ten guineas costs.

Dr. M. Golenkin.—Dr. Golenkin, the Director of the Moscow University Botanic Garden, is celebrating this year the fiftieth anniversary of the commencement of his teaching career. Born in St. Petersburg (now Leningrad) in 1864, after a preliminary education in that city he proceeded to the University at Moscow, where, after completing his studies, he remained until 1894, when he went for a year to study in Germany. In 1904 he took his Doctor's degree, and then went to Java for further experience, being appointed, on his return to Moscow, Professor at the University and Director of the Botanic Garden. He has trained many botanists who now hold important positions in various places, and is the author of more than forty works of a literary and scientific nature. He is an enthusiastic teacher, and still lends a willing ear to all on the University staff who seek from him information and assistance in their work.

Sale of Branches Park, Newmarket.—An important country estate, Branches Park, near Newmarket, owned by the late Mr. G. A. Tonge, is to come under the hammer of Messrs. John D. Wood and Co. (Mount Street), at the Mart, on Wednesday next. A feature of Branches Park, which extends to 2,671 acres, is a Rose garden of some three acres. In the beautiful grounds, in addition to the Rose garden, are Paeony and bulb gardens, and a walled garden of three acres. A substantial building near the house forms a heated swimming bath, sixty feet long by 20 feet wide.

Appointments for the Ensuing Week.—Tuesday, July 9: Royal Horticultural Society's Amateurs' Show; Jersey Gardeners' Society's meeting; Royal Agricultural Society's Harrogate Show (four days). Wednesday, July 10: Croydon Horticultural Society's Exhibition; Hereford and West of England Rose Society's Exhibition (two days); Cosham and District Horticultural Society's Exhibition (two days); Reigate Gardeners' Show; Sheffield Chrysanthemum Society's lecture; Guildford Rose Society's Show; West Surrey Horticultural Society's Show. Thursday, July 11: Norfolk and Norwich Horticultural Society's Exhibition (two days); National Sweet Pea Society's Exhibition at Norwich (two days). Friday, July 12: Royal Horticultural and Arboricultural Society of Ireland's meeting. Saturday, July 13: Hull and East Riding Rose Society's Exhibition; Windsor and Eton Rose Society's Exhibition; Leeds Paxton's Society's visit to Harrogate Parks and Knaresborough.

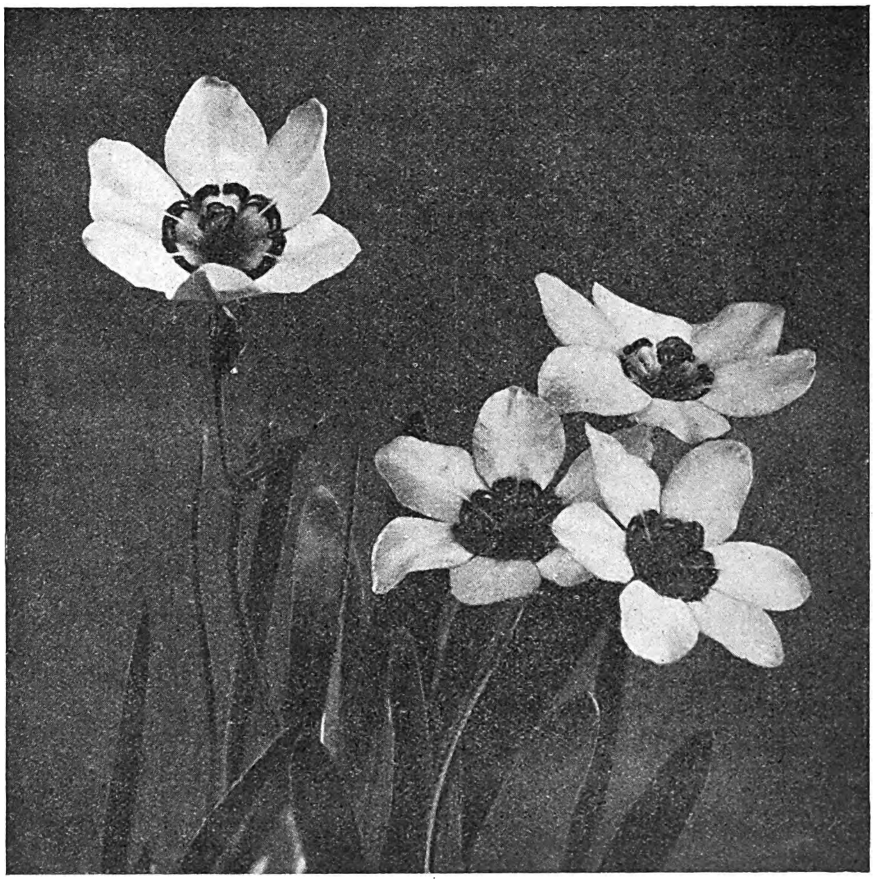


FIG. 1.—STREPTANTHERA CUPREA.

R.H.S. Award of Merit, June 25. Flowers light terra-cotta with purple zone. Shown by Mr. Amos Perry. (see p. 481, Vol. LXXXV).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Inconspicuous Props for Florists' Flowers.*—Pinks, Carnations, and many other things which require to be supported by props, frequently present the appearance, when in beds, of a grove of sticks with plants tied to them, instead of an orderly mass of well-shaped plants, which might be found, on examination, to owe their neatness to props, which without search could hardly have been discovered. The absurdity, where it is avoidable, of having props as conspicuous, or more so, than the plants which they support, is little recognised by gardeners or amateurs, but is constantly pointed at by people of taste, who are not cultivators, and particularly by ladies. Plant growers have a kind of necessary respect for props, from knowledge of their value; but it seems to me this respect for their utility sometimes degenerates into an admiration for their appearance, which leads to their being made much more conspicuous than they ought to be. Be this as it may, it cannot be denied that the true idea of their being helps, which should be kept as much out of sight as possible, is too much overlooked. The best remedy which I have discovered for the evils alluded to, is the use of well-painted straightened wires, of various lengths and thicknesses. For Pinks I have used twenty-four inch lengths of No. 11 wire, which, with two coats of green paint, are almost invisible, and proved perfectly firm and efficient as supports. For Carnations I employed with equal success and satisfaction thirty-six inch lengths of No. 6 wire (about three-sixteenths of an inch thick), but wire of this kind would soon have become loose in the ground, its small diameter presenting little resistance to motion, and to avoid this I employed tapering wooden shods or sockets, about an inch thick at the upper end and seven inches long. These were drilled throughout their length, so as tightly to fit the wires, the ends of which were passed through them, and projected about an inch beyond the small ends, which were thus pointed. The sockets were then dipped in boiling tar, and when this had hardened the wire received two coats of green paint. The firmness and efficiency of these props are most satisfactory, and equally so is their non-appearance. With an annual coat of paint, when out of use, they will last for years and their first cost is trifling. Wires made quite straight by a wire worker, cost me 4d. per lb., which, for small sizes, comes very cheap per 100. The wooden sockets were made for me by a bobbin turner, at 2s. 8d. per gross. When painting the wires I put a spoonful of paint into a woollen cloth laid in the hollow of the left hand, and draw them through it, a plan I find as good, and much more expeditious, than using a brush. This plan of supporting florist flowers was, I believe, first pointed out by Mr. Sivewright, of Cargilfield, near Edinburgh. *W. C. Gard. Chron., July* 8, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Disas.—Enquiries are often received with regard to the culture of these cool house, brilliantly coloured South African Orchids, which are not grown in collections so extensively as their merits deserve, possibly owing to the unsatisfactory results obtained in many cases. They are often regarded as very difficult plants to grow, whereas, in reality, their requirements are very simple, once the right position has been found in which they will thrive and give an excellent return of flowers in their season. Disas require a light, cool, airy position where they can be shaded from strong, direct sunshine. They need a uniform temperature in the winter of from 45° to 50°, and the roots should be kept just moist and growing very steadily. A position in an ordinary greenhouse often suits their requirements better than in the cool Orchid house. A well-drained but moisture-retaining rooting medium is required, which, in the growing season should not be allowed to become dry, while the receptacles may be plunged to three-quarters of their depth in Sphagnum-moss to keep the receptacles cool and check evaporation, and so avoid having to water them frequently. Thrips are often troublesome, and if they gain a strong hold on the new growths quickly do irreparable damage, which often proves fatal to the plants. These pests should be kept in check by frequently spraying with a safe solution of an approved insecticide, if the pests have gained a hold; dipping the growths in the insecticide is very effective, provided it is done carefully, and the plants are afterwards tilted to allow the moisture to drain out of the growths. The plants should never be fumigated as this quickly damages the leaves and eventually the stems and tubers. If the division in which the Disas are grown is to be vapourised, the plants should be removed until the fumes have passed away.

Potting.—At this season, Disas are producing flower spikes, and by the time the flowering period is over, new growths will have started from the base, or from these fresh roots will be produced. At this stage, repotting may be done. Use well-drained pots or deep pans, and a rotting medium of equal parts of well-chopped A.1. fibre and Sphagnum-moss, with a little fibrous loam, and charcoal and good sharp sand to keep it porous. Water should be given sparingly until the roots are established in the soil, which should be made moderately firm, but spraying on favourable occasions, especially in warm weather, is beneficial. Formerly only about two species of Disa were cultivated, namely, D. grandiflora and D. racemosa, but now there are good hybrids available, notably, D. Veitchii, D. Luna, D. Blackii and D. Italia. Some of these hybrids are more robust growers than their parents, the size of the spikes and flowers, and also the range of colours, having been increased greatly, although the old D. grandiflora still remains one of the most striking in colour.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

Silver Leaf Disease of Fruit Trees.—As the name implies, the foliage of trees suffering from silver leaf disease develops a silvery or leaden sheen which usually commences in a single branch, but quickly spreads until the whole tree dies from its effects. This disease is so infectious and so disastrous, especially in Plum-growing districts, that in November, 1919, the Board of Agriculture included it in the "Destructive Insects and Pests Act" of 1877 and 1907, "for the purpose of preventing the spread in England and Wales of the pest known as silver leaf, which is so destructive to fruit trees and bushes." The order added further that "The occupier of any premises on which Plum trees are growing shall cut off and destroy by fire on the premises all the dead wood of each Plum tree before April 1 of each year." This date has now been extended to the first week in July of each year. The disease on the tree is not infectious of itself until the fruiting stage has appeared upon portions of dead wood on the branches or elsewhere, but may be carried on the pruning tools from one tree to another. Although no remedy is known, trees which are in the early stages of silver leaf may, if properly treated, be rid of the disease. To affect this, any branches seen to be diseased should be cut back to behind the point of infection at least, and flush with the main stem if necessary, all wounds pared over with a sharp knife, and then covered at once with Stockholm tar. As stated above, the disease is spread by spores of the fungus gaining an entrance to a healthy tree through some wound, hence the importance of protecting cut surfaces. The most suitable time to carry out this operation is now, and any branches so removed should be destroyed, or, at all events, not left in the plantation for the fungus to fructify on them and spread infection among its healthy trees.

Resistency and Susceptibility. — All varieties of Plums are liable to silver leaf disease, although some are more resistant than others. The variety Victoria and Czar are most susceptible, while Rivers' Early Prolific, Yellow Pershore and Purple Pershore and Blaisdon Red are highly resistant to the disease. It has been stated that when Victoria or Czar have been worked on any of these resistant varieties they acquire a measure of resistancy appertaining to that particular stock. For that reason nurserymen throughout the country are using the Yellow Pershore Plum as a stock for the Victoria. This disease is liable to attack all our stone fruits and the Apple, in fact, any member of the Order Rosaceae, as well as trees and shrubs belonging to altogether different Orders.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Vines. — Ripe Grapes in early houses cannot be kept too cool and airy, and unless the foliage is very good, black-fruited varieties will soon lose their colour in the absence of a little light shading. This, however, should not be fixed unless fish nets are used, when one or two thicknesses will soften the sun's rays and also let in light without affecting the health of the foliage. White-fruited varieties, on the other hand, will be improved by exposure to light, when fully developed and fairly coloured, always provided the circulation of air is equal to the expulsion of moisture. After early houses are cleared, the vines require careful management particularly if the weather be hot and dry, and attacks of red spider are likely to occur. This pest soon destroys the best leaves if neglected, hence the importance of syringing freely, and watering and feeding liberally. Laterals are a great help at this season and save the main buds, but should not be allowed to shade the main leaves, or prevent ventilation. In the successional vineries where Grapes are approaching maturity, plenty of air should be admitted with less fire-heat and a gradual reduction in the supply of atmospheric moisture. The roots, however, should not be allowed to become dry, or even partially so, as cutting off the supply too early or too quickly is one of the most common causes of fruit-cracking, especially in such varieties as Madresfield Court. As a rule, one good watering after the berries have commenced changing colour will suffice, provided the borders are covered to prevent the escape of moisture, and the house is kept dry when the weather is unsettled, the laterals being allowed to grow unchecked.

THE FLOWER GARDEN.

By R. FINDLAY, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Shrubs.—This is a good time to make notes on flowering shrubs for future guidance as to their requirements. Many may require more room to show their true characters, and if their future sites can be selected now, and notes made on each, it will be found a decided advantage when planting time arrives. Those shrubs requiring pruning as they pass out of bloom should be attended to so early as possible, so that the production of vigorous young growths is encouraged for next season. A shrub that is flowering with particular freedom at the time of writing, but which does not yet seem to be planted as freely as its merits entitle it to be, is Buddleia alternifolia. This handsome plant flowers on the previous year's wood, and all the flower shoots should be cut back to ensure a supply of young, wand-like flowering growths for next season. This species does not flower freely in its young state, but when once established it is a most desirable and graceful subject, more or less a fountain of flowers in long, arching sprays. It is perfectly hardy; it came through late spring frosts unharmed, while other Buddleias suffered severely. To give a selection of good shrubs is outside the scope of these notes, but attention might, with advantage, be drawn to the numerous new varieties of Philadelphus. A considerable number have been introduced during recent years, and most of them are worth a place where large collections of shrubs are grown. Well-placed and well-grown plants of the old P. coronarius are not to be despised, but how often do we see this, as well as others, struggling for existence in some crowded shrubbery border in deep shade, whereas they should be on the open lawn, where their full beauty and form can be seen and appreciated. The Cytisuses in general are beautiful shrubs, and are well adapted for growing in light, sandy soils. They are difficult to transplant after attaining any size, and should always be grown in pots previous to planting them in their permanent places. Most species come true from seeds, but the hybrids, among which are some very striking sorts, have either to be increased by grafting or by cuttings of half-ripened growths inserted in sandy soil under a bell-glass.

Dahlias.—These are now growing rapidly and require constant attention with regard to thinning the superfluous growths if good blooms are required. See that all the tall-growing varieties have stakes sufficiently strong to support them and that the growths are secured by tying, or irreparable damage will be caused by wind or heavy rain storms.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Salvia splendens and S. leucantha.—Plants of these Salvias, which are being grown on to form large specimen plants for autumn display, should now be ready for placing in their flowering pots. The compost should consist of good loam, spent Mushroom-bed manure and grit, the last to render it porous. After potting, arrange the plants in a cold frame until they have rooted into the new soil, when they may be stood in the open, preferably where they will be shaded from the mid-day sun. Spray the plants with clear water each evening during fine weather to keep red spider in check.

Hydrangeas.—As these plants pass out of flower, and if large specimens are required for next season, they should be partly pruned (*i.e.*, all weak shoots removed) and then repotted into larger receptacles, after which they should be stood in a somewhat shady position out-of-doors until their roots are active again, when they should be transferred to an open, sunny position to secure well-ripened growths. Most cultivators desire to produce some specimens with blue flowers, and this can easily be attained by using from now onwards one of the proprietary preparations offered for this purpose, strict attention being given to the instructions issued with it. Hydrangeas should be propagated so soon as strong shoots are available for cuttings, which may be rooted readily in a close case in an unheated greenhouse. Where space is not limited, the cuttings may be inserted singly in small pots but, on the other hand, three or four may be inserted in large sixty-sized pots and will give good results, so long as they are potted up early. So soon as rooted, the plants may be removed from the case and stood near the roof glass and shaded for a few days from bright sunshine, finally exposing them to full light. After a few days' exposure they may be potted on into large sixty-sized pots, and when they have filled these with roots they may be removed to a cold frame, where they can obtain the maximum amount of sun and air, and may be allowed to remain until it is necessary to house them for the winter. There are several ways of storing Hydrangeas for the winter, but placing them in a cool greenhouse from which frost is just excluded, will give the best results.

THE KITCHEN GARDEN.

By W. G. STAWARD, Gardener to LADY MARGARET RYDER,
Knowle Gardens, Dunster, Somerset.

Celery.—Celery plants for later crops, which were pricked out into frames, should now be ready for planting out. After planting, give the plants a good soaking. The earlier Celery should be carefully earthed up so soon as large enough, and should be given plenty of water while in active growth. Watch carefully for Celery fly or, better still, spray the plants with a strong solution of Quassia extract, or dust them with soot in the early morning to prevent attacks by this pest.

Cauliflower and Cabbage.—Successional batches of these may be planted now to follow those which were planted three or four weeks ago. If plenty of manure is worked into the ground it will prove beneficial in retaining moisture in the soil should the weather remain dry; Cauliflowers especially should never suffer from lack of moisture at the roots.

Dwarf Beans.—A late sowing of dwarf Beans may be made on ground from which early Cabbages have been cleared, to provide a fresh crop during the latter part of the season. Never allow the young plants to suffer through lack of water at the roots, or tough-skinned Beans will result.

Leeks.—The maincrop Leeks will now be ready for planting out into their permanent quarters. The ground for them should be dug well and manured heavily as Leeks are gross feeders. Allow twenty inches between the rows and plant them ten inches apart in furrows six inches deep. So soon as the plants have become established, fill in the furrows while the beds are being hoed.

Marrows.—During dry weather there is nothing more beneficial to these plants than occasional good soakings with water at the roots, applied preferably in the evening. Pinch back a few of the leading growths occasionally, as by so doing the plants may be brought more quickly into a fruiting condition. Remove the fruits so soon as they are of a suitable size for consumption, as they are of much finer flavour when cooked young than when the skin becomes firm.

Asparagus Kale.—For use during the spring months, this Brassica should be planted now, as it is essential that they become firm and of good size before the winter sets in, so as to be able to withstand the rough weather.

Seed Sowing.—The ground from which early Potatos have been cleared should be sown with stump-rooted Carrots, Turnip-rooted Beet and Turnips. So soon as they are large enough to be handled easily thin the seedlings and hoe the ground between the rows frequently.

FOR NORTHERN GARDENERS.

By JOHN HILL, Gardener to ANDREW ARTHUR, Esq.,
Rosemont, Monkton, Ayrshire.

May-flowering and Darwin Tulips.—Where these show signs of deterioration they should be lifted as the foliage commences to die down, spread out in boxes under cover, and allowed to dry off completely. When dried off thoroughly, clean and grade the bulbs so as to have them in readiness for replanting in September.

St. Brigid Anemones.—As these begin to lose their leaves, they should be lifted carefully and dried off under cover. Seed or Potato boxes are quite suitable for drying them in, and they may be piled in tiers and covered with a sheet of corrugated iron to throw off the rain. When dried off, they may be stored in bags or boxes.

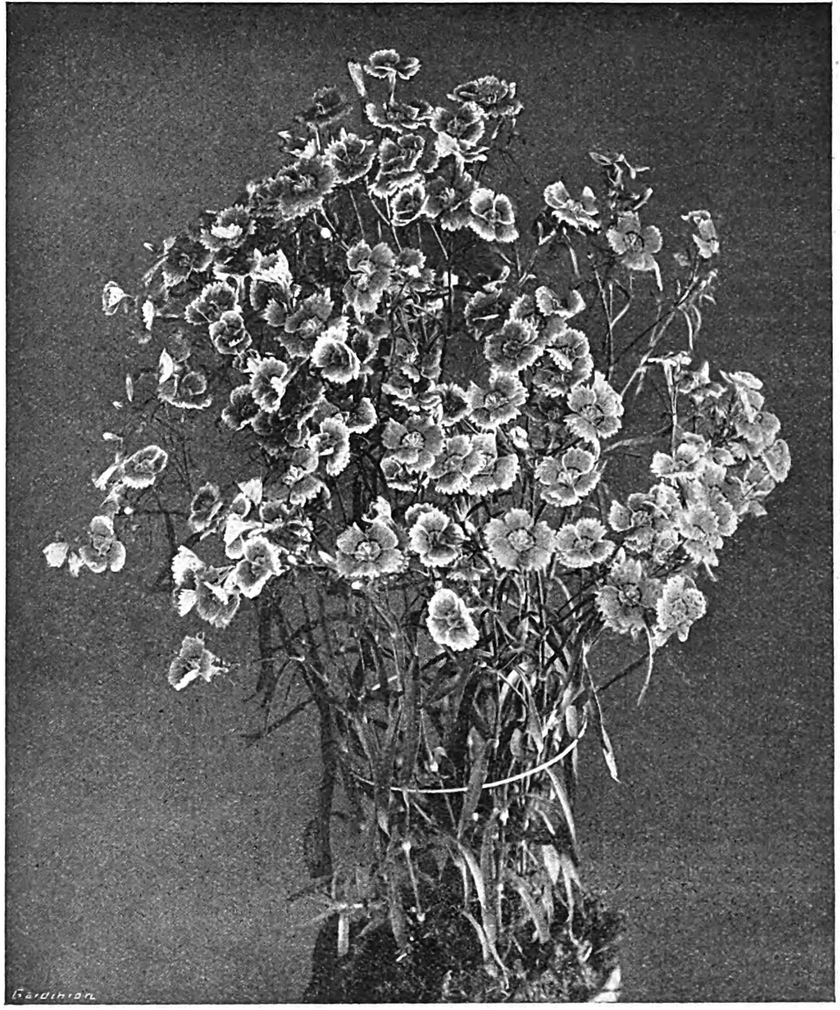


FIG. 2.—DIANTHUS SWEET WIVELSFIELD.

Award of Merit at York Gala, June 18. A hybrid between a Carnation and a Sweet William. It is variable in colour some flowers being light red with paler margins; it will flower within a year of seed sowing. Raised by Messrs. Allwood Bros. and exhibited at the Chelsea and other shows.

Hesperis matronalis var. flore pleno.—Those fortunate in having plants of either the white or purple form of this subject should cut the growths well back so soon as the flowers have faded, and when growth starts at the base the clumps should be broken up and replanted in fresh soil, as this subject dies out quickly if left alone. There are two varieties of each colour type known as French White and French Purple, and Scotch White and Scotch Purple, all of which are most desirable when well grown.

Violets.—These are now making growth and should be given every encouragement to make good crowns; keep the ground clear of weeds and hoe between the plants frequently.

Remove all runners or suckers, preferably by pulling them off, the object being to develop the central crown. If red spider appears, spray the plants at once with an approved insecticide, and, if convenient, give the plants heavy soakings with water, and in hot weather, spray the foliage occasionally.

Late Peas.—Thin these where germination has been good, so that the plants have room to develop properly; cultivate the ground well between the rows and stake the plants at once.

Vegetables.—Broad Beans should be earthed up and staked securely in good time; as they attain a reasonable height, pinch out the tops; this serves the double purpose of assisting the development of the pods and preventing attacks of black-fly, which usually infest the growing point. All vegetable beds should be hoed frequently or cultivated in dry weather, with a view to reducing the necessity of watering, which should only be done if copious supplies of water are available. Driblets are worse than useless, and it is far better to rely on mulching or surface cultivation to conserve moisture.

Strawberries.—If plants are required for producing early crops, the first runners should be secured and laid in, either in pots or in a specially prepared piece of ground between the rows. Three-inch or four-inch pots should be filled with good turf and animal manure, and the runners pegged down into them. If the pots are half sunk into the ground, less trouble will be experienced in watering and keeping them upright; all succeeding runners should be removed.

NOTICES OF BOOKS.

Rock Gardens.

THE immediate impression thrust upon the reader as he opens this book* is that its author has attempted the impossible. To cover the whole theory and practice of rock, water, bog and wall gardening within the limits of 312 pages, nearly fifty of which are occupied by illustrations, and at the same time to profess to give a description of "each individual plant," with propagation and cultural details, is a task that would blunt the courage of most. But the author claims to have achieved not only all that, but to have dealt with the construction and management of Lily ponds, the alpine house, the moraine and paved gardens, and with the culture of their respective occupants. Further, at the expense of more legitimate claimants for space, he does not hesitate to include many genera of shrubs and forest trees, Ferns, Grasses (including Bamboos), spring and half-hardy bulbs, Rhododendrons, Liliums, the culture of Roses and even annuals. The result of this effort to contract into one volume matter that, to do it justice, could not be squeezed into half-a-dozen works of equal size, is obvious. The information, much of which is sound enough, so far as it goes, is too sketchy to be helpful to those who might take up the book as a reference, and the generalisations which sweep through its pages are apt to lead astray the novice who looks to the author for guidance. Then there is such an interminable number of lists and tables of plants for various sites, soils, etc., that the overlapping and repetition which naturally ensues leads to confusion.

Since Mr. Edwards has an easy style and shows no little ability in the handling of his material, the above seems the more regrettable. The discerning reader will gather much that is of value from his pages, especially hints on planting, seed-raising and other technical points. But not many will agree with the author when he states that crazy-paving is "the most satisfactory type of path for the rock-garden." Nor will the experienced builder of a dry wall who believes that stone must rest on stone, countenance the author's advice to leave an earth space of from one to three inches between each block, *i.e.*, laterally. Slips in spelling are few, but Mr. Edwards has not been so careful in other respects. Anagallis tenella, for example, is given as a half-hardy annual, Borago laxiflora and Omphalodes cappadocica as annuals. We are told to plant Erythroniums only one-and-a-half-inch to two inches deep, and Linaria vulgaris is given a description which fits a very different plant, L. Cymbalaria. Bryanthus erectus is stated to be a good species, and this shrub is robbed of another distinguishing feature by the statement that it has "pitcher-shaped flowers." Then the author gets badly boggled over the genus Phyllodoce (Bryanthus) by calling it Phyllothamnus, which is, of course, the proper generic name of what he calls Bryanthus erectus. Cistus and Helianthemum are only a little less mixed-up. Calluna vulgaris var. alba Serlei is stated to have double flowers and to grow but twelve inches tall. Veronica Balfouriana, a shrub of three feet, is described as a herbaceous species of three inches, and in far too many instances is the word "species" used when it should be "variety," and *vice versa*.

If such obvious slackness is irritating to even a moderately well-informed reader, it is likely to be the reverse of instructive to the seeker after accurate information. Further, a great bulk of what might have been useful matter is discounted by the fact that the author's advice, as on the selection of plants for certain positions and seasons, is so often at variance with practical experience. We are, for instance, asked to include Aubrietias, Waldsteinia trifolia and Asperula odorata among the best moraine plants, while many really suitable and choicer subjects are omitted. Would anyone not looking for trouble plant Petasites fragrans (described as having "white flowers"), Vinca major, Epilobium angustifolium, Berberis stenophylla or Abies nobilis in the bog garden? Yet, these are recommended, and several excellent and well-known plants not even mentioned. Again, where one would expect a selection of rock garden Berberises, only two inferior dwarf varieties are given, and they are classed as species. In Potentillas, Pentstemons and many other important genera, some of the finest rock garden plants are ignored. Saxifraga umbrosa is recommended for the bog, and such superb bog plants as Primula Florindae and P. helodoxa are not so much as named. Iberis sempervirens is recommended as a suitable subject for the alpine house, Daphne Cneorum and Dryas octopetala for places in full shade. As for dwarf Rhododendrons, the meagre notice accorded these in what purports to be a modern book on rock gardening is incomprehensible.

The publishers are to be commended for their part in this production, and if many of the coloured plates are not particularly attractive, the fifty photographs are mainly good, so good in some instances that they make one wish they had a more deserving backing in the text. The next time Mr. Edwards sets out on a venture of this kind he must begin by readjusting the focus of his ambition. Having done this, let me implore him to treat his subjects with that nice individual intimacy with which he advises us to approach the slug. "When found," he tells us, we are to drop a pinch of salt on the head and another pinch on the creature's back (the tail he omits). But then, pinches of salt are nasty things to meddle with in a garden, and as liable to get into wrong places as they are on a writer's table. *J.*

Horticulture, Elementary and Practical.*

THE author of this book was formerly Associate Professor of Horticulture in several of the American universities, so that his experience is that of the United States. One of the first things that will strike the reader is the distance allowed between rows of Carrots, Onions, Parsley, Radishes, etc., in a commercial garden, as compared with the rule in this country, and that would seem to be to enable horse cultivation to be employed. In suburban gardens the distance is seldom less; but for hand culture in city gardens the distances approach more nearly those allowed in English market gardens and others generally. In Fig. 5, Asparagus, Gooseberries, herbs and Radishes are all shown to be planted in rows three feet apart. The pruning knife would have to be used freely to keep Gooseberries in this space, unless the bushes are of more limited growth than in this country. Doubtless the Radishes are intended to be sown in the form of a long, narrow bed. All sowings are formal, going in lines the whole width of the garden, sometimes the whole length. This certainly facilitates cultivation; and the author certainly insists upon orderliness. All perennial crops must be kept together, and annual ones by themselves, so that the proper cultivation at the proper time can be given.

It is interesting to note in a chapter on the seed and its needs, that Leguminous seeds not infrequently absorb their own weight of water, and the seeds of some Clovers absorb more than their own weight. Doubtless this is the reason why Peas and Beans rot in the soil if sown when the latter is too wet. Seeds of various kinds can have too much moisture at the initial stages of germination, and the author gives good advice on this point. All seeds have their own minimum, optimum and maximum at which they can germinate, and it is here stated that Rye will germinate on cakes of ice. It has been recorded in this country that the Sycamore will germinate at 32°F. It would seem that large growers in America have to depend on the testing of seeds for themselves, as to their germinating capabilities, and they are advised to do so. Methods of testing seeds are much the same as here, even if the apparatus varies in some respects.

It may make readers take notice when the author writes of freezing the soil to destroy organisms in it when getting it ready for a seed-bed, or for filling seed-boxes. He also recommends autumn ploughing to destroy nematode worms that ruin Strawberries, and the growing of other crops for two or three years to exterminate the pests. The sowing of a lawn by means of a "seeder" shows how every operation comes to be mechanised until the modern sower has lost the skill of his predecessor. In transplanting various subjects to the open ground, he calls attention to the fact that many roots are broken away, and recommends the removal of twenty-five to fifty per cent. of the leaves to balance the roots and foliage. That may be necessary in the warm and arid climate of America, but it is unnecessary in Britain.

The book runs to 382 pages, including a good index, and much information is embraced between the covers. The contents include twenty chapters, dealing with propagation, budding and grafting, pests of cultivated plants, spray machinery and spray materials, the pruning of plants, harvesting and marketing, winter protection of plants, the Strawberry, bush fruits, the Brambles, the Grape, home-fruits, stone fruits, Citrus fruits, beautifying the home garden, and the water garden. The illustrations are mostly reproductions from photographs, and represent tools, implements, methods of budding and grafting, packing for market, etc. The Gooseberries shown grow remarkably erect compared with ours; suckers are allowed, but thinned in pruning. Printing, paper and editing leave nothing to be desired, and much information of a useful kind may be gleaned from the pages. Being of the nature of a class book, it has review questions at the end of each chapter.

Nature in Wood and Forest.*

THIS is the third book in "The All-round Nature Books" series by the same author. Its contents are contained in seven chapters, with twenty-three very good line drawings of plants, mammals, birds and insects that inhabit woods and forests.

Only the larger trees are discussed, as being proper to the situation, although some passing allusion might have been made to the early summer beauty of such small trees as the Hawthorn, White Beam and Laburnum on the margins of woodland. The last-named are, of course, not British. Round about Christmas, or in the darkest period of the year, according to the author, the ancient Britons or Celts carried on the same, or similar, forms of amusement under the Mistleto as are practised in these times. He recalls the time when the Weald of Kent, Surrey and Sussex was one vast forest. One can imagine something of it when it is noted that many of the existing places have the word "hurst" attached to them, indicating the time when the forest got broken up into detached woods. The reader will note, in connection with the Rowan and other well-known trees, that none of the old superstitions attached to them is revived. Belief in them has almost died out, although some others (here unrecorded) would seem to have arisen recently, as if superstition were part of the human psychology.

In dealing with the larger wild flowers, the author states that the Willow Herb has the habit of suddenly springing up in clearings. It was there all the time in the wood, carrying on a precarious existence by means of its underground stolons, until stirred into activity by the advent of sunshine. He states it is often grown in gardens, but that is the short-podded Continental form, which is the one he illustrates. Foxglove is a corruption of Folk's or Fairies' Glove. He describes the Barberry as evergreen, but that is wrong, unless he refers to Berberis aquifolium, which is often planted for covert. Among the smaller wild flowers, he noted one mild winter on December 28, that many plants of the male Dog's Mercury were in bloom, but he failed to discover any pistillate flowers and asks his readers for notes concerning the phenomenon. The answer is easy. In dioecious plants one often finds the sexes widely separated, as in the case of the Field Thistle, Poplars and arboreal Willows.

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* *Rock Gardens: how to Plan and Plant Them*, by A. Edwards. Ward, Lock and Co., Ltd., London. Price 7s. 6d.

* *Horticulture, Elementary and Practical.* Prepared especially for those interested either in Home or Commercial Horticulture. By George W. Hood, M.Sc. Third Edition, thoroughly revised. Illustrated with 156 engravings. London: Henry Kempton, 263, High Holborn, W.C. 1929. Price 15s. net.

* *Nature in Wood and Forest*, by W. Percival Westell, F.L.S., F.S.A.Scot. Illustrated. London: The Sheldon Press, Northumberland Avenue, W.C.2. 1929. Price 2s. 6d.

In the chapter on mammals, the wild animals and their doings are discussed, from the badger, otter and fox, to the long-tailed wood mouse; but the wild fauna has been greatly reduced since the time when Londoners hunted the wild bull and the boar on the slopes of "Happy Hampstead." Among the larger birds, the author states that the jay is one of the most handsome birds in Britain, but a vagabond, and that a pair would do more harm in egg-stealing than all the boys of a parish. He was so pleased with eight jays in his garden that he suffered them to dig up and eat all the Peas he had sown. He repeats the story that the cuckoo lays her egg on the ground, picks it up in her beak, and lays it in the nest of some other bird, including the moorhen. Apparently he takes no notice of Mr. P. Bunyard's findings that she swallows the egg, carries it to the nest and regurgitates it.

All the chapters are interesting, particularly those relating to the larger and smaller birds. The book makes light and entertaining reading for young naturalists in various fields of science, as well as the general reader, and it is well edited.

ALPINE GARDEN.

ANDROSACE PYRENAICA.

THE Androsaces comprise a group of plants of great beauty, belonging to the Primrose family, and varied both in form and habit. The downy-leaved forms are difficult plants to cultivate successfully near large cities where dust and soot gather on the leaves.

The illustration (Fig. 3) depicts a pan of the charming A. pyrenaica, a most distinct plant, forming dense cushions of small, greyish rosettes which are covered with small, star-shaped, white flowers; even when out of bloom the neat cushions are most attractive in the alpine house.

The dwarf, mossy Androsaces are rather difficult to grow in the open and are only a success in the more northern districts, where they should be planted in the fissures of rocks in a mixture of peat and sandy loam. Even then great care is required to guard these tiny plants against slugs and aphis. Where frames or an alpine house are available, such Androsaces as A. pyrenaica, A. helvetica and others belonging to the "mossy" section, are delightful subjects for growing in small pots or pans.

Such well-known kinds as A. lanuginosa and A. sarmentosa will grow freely in any good, well-drained garden soil on the rock garden. The former, a native of the Himalayas, is a precious rock plant, its prostrate shoots trailing a considerable distance and bearing rosy-lilac flower heads in great freedom during late summer, at a season when flowers on the rock garden are none too plentiful. It is perfectly hardy, but like all downy-leaved plants, it is not happy near large cities where the atmosphere is less pure than in the open country. A. sarmentosa and its various varieties are too well-known to need description. They will grow freely in a warm, well-drained loam, producing their soft pink-coloured flowers on every rosette. The varieties known as A. s. var. Watkinsii, and A. s. var. Chumbyi, are neat and free-growing plants worthy of being included in every collection. *F. W. G.*

SISYMBRIUM PINNATIFIDUM.

SINGULARLY rare, in nature as in gardens is this handsome Crucifer (syn. Hugueninia tanacetifolia). It occurs east of the Valis, and on Mount Cenis is fairly abundant, filling many of the curious gypsum pockets with golden beauty. It is no plant for a choice position, but in a quiet corner, in half shade, perhaps, and rather moist soil, will prove as effective as any Alyssum during May and June. I have written "half-shade," but here, in the nursery, the stock-plants, which are planted out in nursery rows, in a fully exposed position, are perfectly happy; they have fairly rich, well-drained soil, and this seems to be the first need of the plant.

Seeds germinate readily and are freely produced, and in two years will provide noble masses of Tansy-like foliage, very handsome in itself, and covered in due season with multitudes of the tiny Cruciferous flowers, so small in their individual selves, but forming a grand show in their generous quantities. The colour is good, a yellow, not giving any suspicion of green, as so many yellows do, but a soft, clear colour, effective, and lovely for association with other, brighter colours.

This plant should certainly be better-known; at present it is only the botanists who recognise it when they see it, and always observe, "Why ever is that lovely plant not more grown?" *Will Ingwersen, The Birch, Sharpthorne, Sussex.*

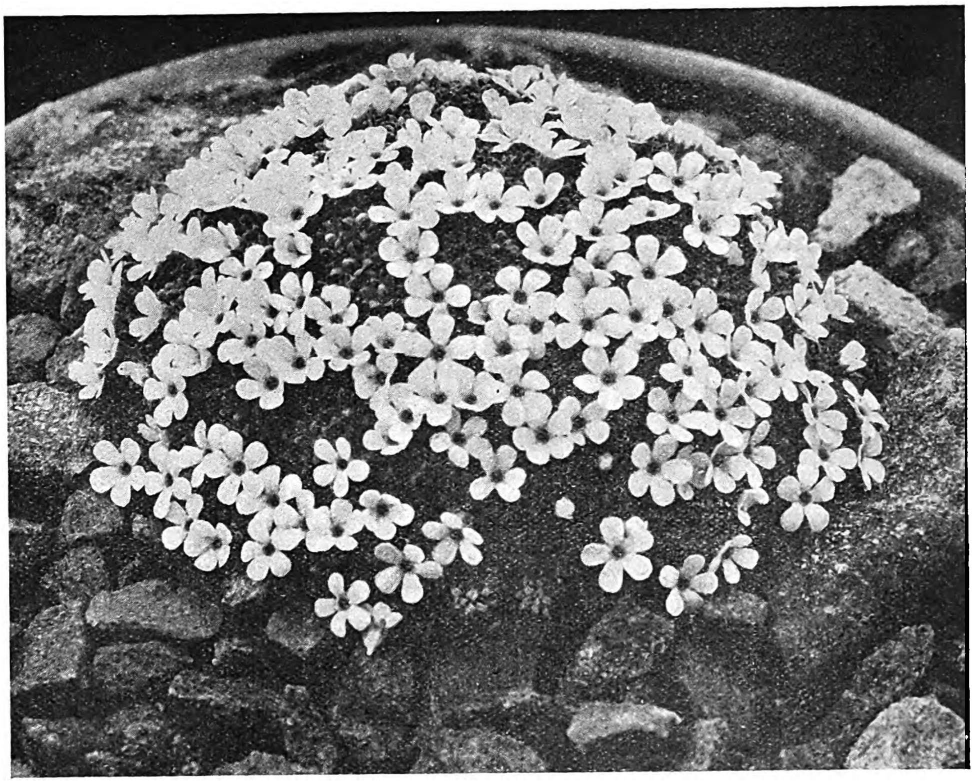

FIG. 3.—ANDROSACE PYRENAICA.

GENISTA LYDIA.

THIS dwarf Broom, generally known in gardens as G. spathulata, has been occupying a spot on the top of a dry retaining wall for some years, and every season in early June it is a glowing mass of rich golden-yellow. If it is a form of G. tinctoria, as some authorities believe, it is certainly the finest representative of that species, regarded as a dwarf flowering shrub. In habit of growth and in its sparse, slender branches, which are almost prostrate, but arching, with their tips depressed, G. lydia suggests an Ephedra. The simple, very narrow, deciduous leaves are few, and at any season other than the present the little shrub can claim no pretensions to good looks. But towards the later spring the spreading and rather fish-bone branches bristle with innumerable short growths which in a few weeks develop into a blaze of blossom.

This delightful little Broom is perfectly hardy and an excellent subject for a hot, dry place among rocks, over which it can display its copious showers of bloom. It appears to be a native of the Transylvania region and other parts of eastern Europe. One or two botanists also consider it synonymus with G. caespitosa and G. leptophylla. It has never borne seeds with me. *A. T. J.*

INDOOR PLANTS.

IXORA MACROTHYRSA.

THIS, perhaps the finest of all the Ixoras, is now seldom grown, chiefly because considerable warmth is necessary to produce perfect plants. I well remember the small stove house in Messrs. Cypher's nursery at Cheltenham, which, in pre-war days, was reserved for the culture of this magnificent species, and the specimens exhibited by this firm are too well remembered to need comment from me.

Perhaps more familiar under the name of I. Duffii, I. macrothyrsa was introduced from the South Sea Islands in 1878; the flowers, borne in immense heads, are deep red, suffused with crimson as they age. The large leaves will often attain ten to twelve inches in length, and are a deep, glossy green.

All Ixoras are naturally free-flowering, and even small examples of this noble species, each carrying one big head of bloom, are highly decorative; specimen plants may be grown to large dimensions.

A rooting medium of fibrous and sandy peat, plenty of heat and moisture, even more than is required by most Ixoras, and a light structure, are essential to the successful culture of this otherwise easily-grown and magnificent species. Cuttings afford a ready means of increase. *Ralph E. Arnold.*

PERISTROPHE SPECIOSA.

THIS charming flowering plant is a native of India. Its generic name refers to the corolla, the tube of which is twisted so that the flower itself is actually upside down. As the specific name implies, the plant is extremely showy. It is a member of the Natural Order Acanthaceae, and is often referred to as Justicia speciosa.

The flowers are rich carmine-purple in colour, and are very attractive, peeping out, as they do, from among the ash-grey-coloured foliage.

Peristrophe speciosa is a useful little plant for growing in the conservatory or stove, as it comes into flower in early November, and is of easy culture.

Cuttings may be secured in the spring and rooted in a close, warm propagating case. When well rooted, they should be placed singly in sixty-sized pots and grown on in a moderately warm house; during the summer the plants may even be grown in a cold frame, but they require to be flowered in a house. The compost should consist of equal parts of good, mellow loam and leaf soil, with a fair amount of sand added to keep it open. Five-inch pots will be large enough to flower them in. Pinching the growths should be attended to regularly so as to secure compact, bushy specimens that will give an abundance of flowers. *F. H. Wright, University Botanic Garden, Cambridge.*

BUDDLEIA FARQUHARII.

THIS hybrid between B. asiatica and B. officinalis was raised by Messrs. R. and C. Farquhar and Co., of Boston, Massachusetts, in 1913. It is an excellent plant for winter-flowering in the greenhouse, and is fairly commonly grown here in the United States, although I have no recollection of seeing or hearing of it in England. The foliage is practically identical with that of B. asiatica, but the fragrant flowers, instead of being white, are pale mauve in colour, and the spikes of bloom are much looser and broader than those of B. asiatica. These spikes are produced very profusely and are arranged in large, terminal panicles.

Buddleia Farquharii is a worthy companion of the better-known B. asiatica and flowers about the same time—that is, in January and February. It is propagated readily from cuttings of non-flowering growths taken from cut-back stock plants from April until June. The young plants should be potted on as growth demands, finally placing them in eight- or nine-inch pots. During the summer the pots may be plunged out-of-doors, but constant attention should be paid to watering. Syringing will prevent attacks of red spider, which may prove troublesome, and feeding is beneficial when the final pots are filled with roots. Before frosts are liable to occur, remove the plants to a greenhouse with a night temperature of 40° or 50°. *T. H. Everett, New York.*

HARDY FLOWER BORDER.

POLEMONIUM CARNEUM.

THIS is a very attractive plant and easily grown. The leaves are thinner and of a darker green than those of P. coeruleum, and they are also narrower and more pointed. The flowers open pale buff, but gradually darken to a delicate pink, which becomes somewhat purplish. They are more loosely arranged than those of P. coeruleum, but are of about the same size, and the plant attains a height of about one foot.

P. carneum is a native of north-west America, and my specimens came from a contributor to this journal. Ordinary soil suits this species. *C. Nicholson.*

ERIGERON AURANTIACUS.

AT a glance, Erigeron aurantiacus might easily be mistaken for a Hieracium, for, unlike the majority of the species belonging to this extensive genus, and which have flowers of varying shades of white, lavender and mauve, this species, which hails from Turkestan, has rich, semi-double, vivid orange-coloured flowers, which are very striking.

E. aurantiacus may be grown in the herbaceous border, where it should be planted near the front, or it may be employed on the rock garden. It requires moderately light, well-drained soil and a position fully exposed to the sun.

This Erigeron is not rampant in growth—a factor which makes it specially suitable for the rock-garden — but forms a compact clump of rich green, long-petioled leaves, oval in shape and about four inches long. The flowers are about one inch in diameter and are produced singly on rather stout, leafy, branching stems fifteen inches or so high, the flower stems having leaf-like, clasping bracts at their bases.

Although E. aurantiacus does not flower so profusely as many of the better known species, or the garden hybrids, it is yet very desirable, for its vivid blossoms are produced in continuous succession from mid-June until the end of July. It is hardy if grown under conditions as suggested, and may be increased by division. *Kent.*

DICTAMNUS ALBUS.

OF graceful and stately habit, Dictamnus albus, a member of the Natural Order Rutaceae, is undoubtedly one of the oldest and best of our hardy herbaceous perennials. Native of Europe, it was introduced in 1596, since when it has proved itself to be a very useful border plant. Its common name, Fraxinella, is derived from the fact that the leaves closely resemble those of the Fraxinus (or Ash) in appearance.

The large, white flowers are borne in long, terminal racemes to the height of two to three feet. Each individual flower consists of a calyx of five sepals; five stalked petals, the uppermost four being erect, while the lower one is declined; ten stamens, which are declined, but upwardly curved and are usually equal to or exceed the petals in length, and a five-lobed ovary.

The leaves are impari-pinnate and exstipulate, and the leaflets, of which there are four to six pairs, are ovate and serratulate. The main stems are winged between the pairs of leaflets.

The peculiar phenomenon concerning this plant is that the outer parts of the flowers are covered with oily or resinous glands, and in the still of the evening following a bright, sunny day, the application of a lighted match to these parts produces a gaseous flare. Incidentally, this does not appear to damage the plant materially.

Both the flowers and foliage of Dictamnus albus are fragrant, and the odour is not unlike that of the Lemon. If crushed, however, the leaves produce a far stronger and much less pleasant smell.

This handsome plant, flowering in May and June, thrives well in any ordinary soil, but prefers a rather dry, sunny position. Propagation may be effected by seeds sown about three-quarters-of-an-inch deep in the open, directly after gathering, or by division in October or March. Fleshy root cuttings may also be taken, but as this plant is free-seeding, propagation by seeds is by far the best method of increasing a stock.

Varieties of Dictamnus albus include var. himalaicus, var. tauricus and var. purpureus (Burning Bush), the latter, a purple form, being perhaps the best. *Reginald E. Moore, University Botanic Garden, Cambridge.*

TREES AND SHRUBS.

MENZIESIA PILOSA.

ALTHOUGH not a showy shrub, this North American species is one that will appeal to all interested in Ericaceous plants. It is by no means new, having been introduced in 1806, but it is rarely seen in gardens, having doubtless been outclassed by somewhat similar members of the Enkianthus family. M. pilosa is a deciduous shrub, not exceeding four feet in the light soil of my Heath slopes. The alternate leaves are about two inches long, half as wide, and hairy, especially on the upper sides. During May copious clusters of pendulous blossoms are produced at the ends of the previous year's shoots. The bell-shaped corollas are a pale greenish-yellow, tinted with rose at the mouth, and about one-quarter-of-an-inch long. In habit the shrub is rigid and upright, the old bark often hanging in shreds from the rather sparse branches. Although the flowers are scentless, they are exceedingly attractive to bees and other insects. *J.*

ATRAPHAXIS MUSCHKETOWII.

THIS deciduous shrub is not often met with in private gardens and is, in fact, seldom seen outside botanical collections, for it is not of sufficient merit to justify planting in gardens where space is limited. Nevertheless, it is not without interest, and is the most attractive of its small genus, which is of special botanical interest in being one of the few genera belonging to the Natural Order Polygonaceae, composed of hardy, woody shrubs.

The several species of Atraphaxis are found scattered throughout south-eastern Europe and central and western Asia, A. Muschketowii hailing from the Thian Shan range, central Asia, where it was discovered by Krassnov, and was received at Kew, from Russia, in 1880.

It is a shrub of loose, rather ungainly habit, the older branches, which peel their bark, becoming barren as they age, the young shoots being clothed with alternate, narrowly ovate leaves which are up to two-and-a-half inches long, tapering at both ends, smooth and pale greyish-green, and with crinkled margins. Each leaf is furnished with two stem-clasping stipules, which terminate in spur-like points one each side of the stem. The flowers of A. Muschketowii, although they may hardly be termed striking, are yet daintily attractive, for they are star-like in appearance owing to the spreading stamens and are produced in dense racemes an inch or more long at the ends of the previous season's growths during early June. They are white, and are about one-third-of-an-inch in diameter, while they are made more conspicuous by the purplish-rose-coloured anthers and ovary

This shrub requires to be planted in well-drained, rather sandy soil, in a sunny position; it is not difficult to establish if young specimens are planted, but old plants resent disturbance and do not transplant well. It may be propagated by cuttings of young growths taken in early summer and rooted under glass. *W.*

PACHYSTEGIA (OLEARIA) INSIGNIS.

PACHYSTEGIA insignis, which is probably better known as Olearia insignis, is a remarkably handsome plant, quite unlike any of the other Daisy-trees found in New Zealand. This striking plant (Fig. 4) had been included among the Olearias until Cheeseman created the genus Pachystegia for its reception, when publishing his second edition of the *Manual of the New Zealand Flora*. Probably his interesting comments on the matter had better be quoted verbatim. "A monotypic genus confined to New Zealand. It is closely allied to the Australian and New Zealand Olearia, in which it was originally placed by Hooker under the name of O. insignis. But Hooker himself in the *Handbook of New Zealand Flora* (1864) says that it is 'almost generically distinct from Olearia in the simple pappus of equal hairs thickened at the tip.' Later on, when figuring the species in the *Bot. Mag.* (t. 7,034), he remarks, after drawing attention to the affinity of Olearia to the genus Aster: 'Of all the many species of Olearia, however, none departs so widely from Aster as does the one here figured, which in its great ovoid involucre with the bracts in many series, and its uniseriate pappus of perfectly equal hairs, rather clubbed at the tip, departs a good deal from the typical Olearias.' Much study of the genus both in its wild and cultivated state, has fully convinced me that the two characters mentioned above—the great ovoid involucre, with its multitudinous bracts, and the uniseriate pappus, with its clubbed equal hairs—are together quite sufficient to justify the creation of a new genus."

Although New Zealand has produced many striking shrubs, it is very doubtful if any of them is more worthy of notice than P. insignis. This neat shrub is found only in the north-east corner of the South Island, where it seems to show a partiality for growing perched high up on ledges or out of clefts on rocky banks of rivers, from sea-level to 3,000 feet.

Of a pleasing habit, seldom attaining more than six feet in height, it produces many low-spreading branches, of the thickness of the finger, and very densely clothed with a thick, white or greyish tomentum, as are the young leaves, the undersurface of the old leaves, the petioles, peduncles and involucres. The thick, coriaceous leaves, which vary from three to seven inches in length and from one to four inches in breadth, are oblong to obovate in outline, and are borne in rosettes at the ends of the stout branches. The young leaves are covered with a dense clothing of tementum, giving them a charm which is all their own, and as they become mature the tomentum peels off, revealing the beauty of the glossy, dark green leaves, which are characteristic of the plant. The handsome, Daisy-like flower-heads are borne singly on thick peduncles which frequently develop a few foliaceous bracts just under the involucre.

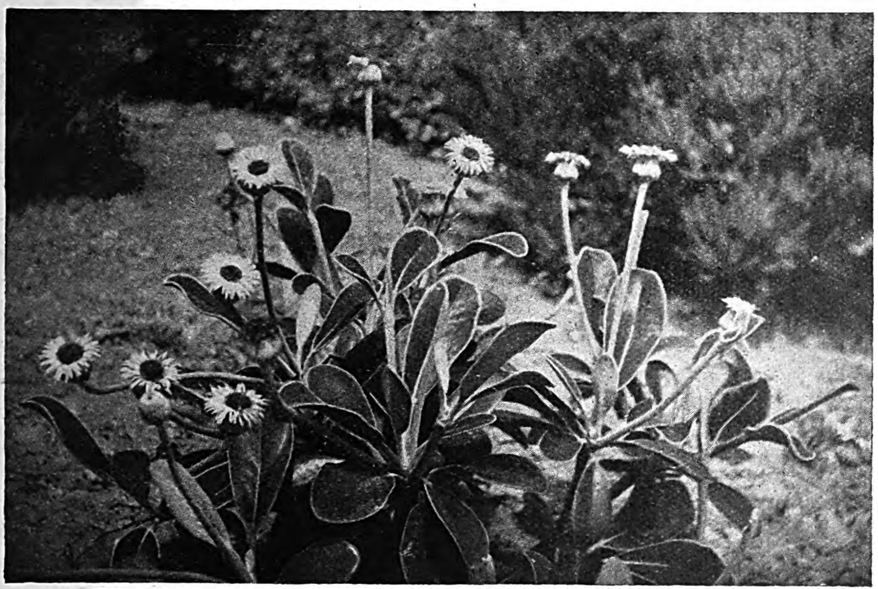

FIG. 4.—PACHYSTEGIA (OLEARIA) INSIGNIS.

There is a distinct variety of this plant in cultivation, namely, P. insignis var. minor (Fig. 5). This variety is more lax in habit, produces less tomentum, and is much smaller in every way than the type. For some time it was suspected of being of hybrid origin, but it has come true from seeds so there now seems but little doubt it is a true varietal form.

In *Trees and Shrubs Hardy in the British Isles*, Mr. Bean states that Olearia insignis is not hardy in Britain, but has proved quite hardy and seems to thrive in Ireland. Thriving in almost any soil, it is not difficult to grow, but it is a sun-lover and demands as much sunshine as possible. In its native habitat it finds a living where no nourishment would appear to be available, on the rocky walls of river gorges, etc., and therefore in the rock garden and on a dry, sunny bank should find a congenial home.

This plant may be propagated by cuttings, but owing to its neat habit, few people care to cut their plants about, and this is not really necessary because fresh seeds usually germinate freely. *Dunedin.*

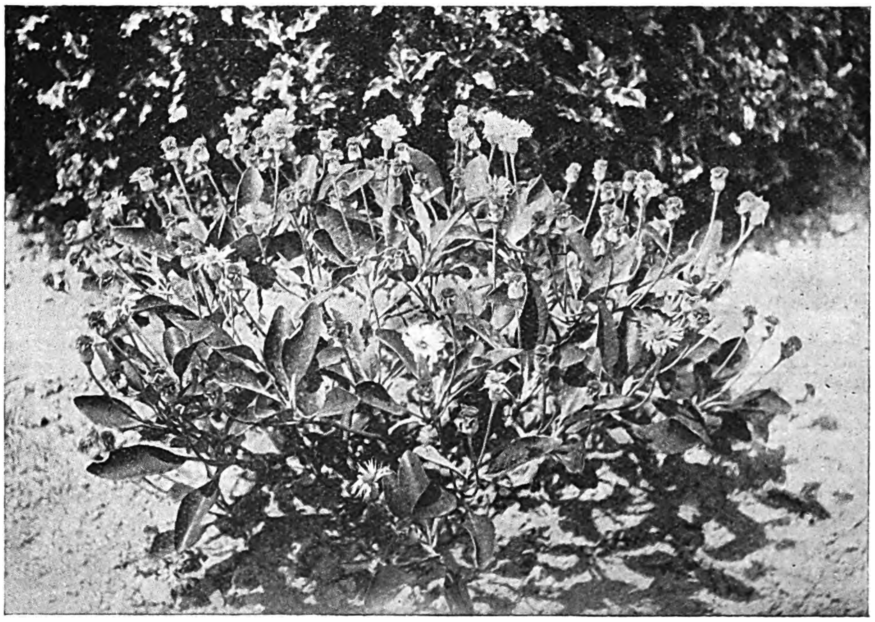

FIG. 5.—PACHYSTEGIA (OLEARIA) INSIGNIS VAR. MINOR.

RHODODENDRON HYPOLEPIDOTUM AND R. CAMPYLOGYNUM.

THE above two Rhododendrons recently flowered very freely and are quite distinct species, the latter being a type to a series which includes the Himalayan R. glaucum that is possibly better known to devotees of the genus. The chief characters of the series are: Aromatic, evergreen shrubs, usually low, compact, from less than twelve inches to a few feet high, with moderately short and twiggy growths, (not any appear gross); flowers scaly, small, fleshy; stamens downy; style short, fleshy and bent. Distribution, western China, Yunnan, Tibet, and the Himalayas.

R. HYPOLEPIDOTUM.—Seeds of this Yunnan species were sown in 1917. They germinated freely, many plants resulted, and these grew well. The best of these is about eighteen inches high and twenty-four inches or so wide. It has a loose, spreading habit. Most of the young growths made last season have terminated with an inflorescence. The leaves are obovate-elliptic in shape, one-and-three-quarter inch long, three-quarters- to one inch broad, slightly glaucous beneath, dull green above; young foliage smooth, bright green, with scattered and persistent scales. Inflorescence lax, six-flowered; corolla short and widely campanulate; colour yellow; style slightly bent, shorter than the corolla tube; stamens ten, hairy.

R. CAMPYLOGYNUM.—This western Chinese and Yunnan species has been in cultivation for a dozen years or more, yet it does not appear to be intimately known. It is one of the smallest members in the series and quite hardy. The habit is close and compact, adult bushes being less than a foot high, but extending more than that. The rate of growth is slow, only one to two inches annually. It is very distinguishable with its dark green foliage. The small leaves, thickly set on the growths, are shortly obovate-oblanceolate, half-an-inch long, a quarter-of-an-inch broad, glossy and dark green above and very glaucous below, with few scales, which fall early. Inflorescence only two-flowered, carried erect on firm pedicels; corolla tubular-campanulate, plum-purple in colour; shaded with deep "bloom"; style reddish and larger than the corolla tube; stamens ten, anthers golden.

A very fine plant I saw in a north Yorkshire garden was well established and in a healthy condition, which goes to prove its hardiness.

Between these two species a hybrid has been raised; this cross was made in 1924, R. campylogynum being the seed parent. It is singularly intermediate in all characters, and if the colour is not so precise and clear as in the parents, it is, nevertheless, an artistic shade, and one not found among other Rhododendrons. It gives indications of being floriferous. The habit is somewhat erect. The leaves are elongate-oblanceolate in shape, one inch long and one-third-of-an-inch broad, bright green above and glaucous beneath; scales scattered over the foliage; inflorescence four-flowered, dull salmon-red in colour; calyx, corolla, style and other botanical parts are also intermediate.

There are other very interesting Rhododendrons in the above group, notably R. aureum, R. brachyanthum and a dozen or more others much less known; yellow or greenish-yellow is the chief colour of the flowers.

A position in shade or partial shade would be the best for them; they would also be of interest if such a position could be found for them in the rock garden. *C. F. Coates, Kew.*

LONICERA PYRENAICA.

MANY of the smaller species of Lonicera may hardly be termed very attractive when in flower, but L. pyrenaica is one of the exceptions, and is specially suitable, on account of its fairly dwarf and compact habit, and its free-flowering propensities, for growing on the rock garden. A native of the eastern Pyrenees, it has been in cultivation now for nearly two centuries, and is quite hardy, flourishing, like the majority of the Loniceras, in good, loamy soil, not too heavy, and a sunny position.

L. pyrenaica is a deciduous, non-downy species and forms a compact, shapely bush up to three feet high. Its foliage is very attractive, the small leaves, obovate in shape and tapering at the base, being grey and glaucous, especially on the undersides. It flowers in early June, usually with great freedom, the blossoms, which are creamy-white, tinted with pink, and about half-an-inch across, being produced chiefly in pairs from the axils of the leaves on the short growths, and are often followed by a good crop of bright red, round berries, which brighten the shrub in early autumn. L. pyrenaica is figured in the *Botanical Magazine*, t. 7,774. *M. W.*

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THE DISEASES OF LILIES.

IN 1925, Mr. L. Ogilvie, who was then on the staff of the Department of Agriculture in Bermuda as Plant Pathologist, began a systematic investigation into the causes of the diseases which had ravaged the bulb fields in the island and reduced the cultivation of L. longiflorum from a prosperous industry to one of negligible proportions—a condition of affairs which, happily, has since been reversed.*

Disease first became troublesome in Bermuda in the 'eighties, and was originally thought to be due to Botrytis, which at that time had been diagnosed and described by Professor Marshall Ward. In 1897, Mr. A. Woods, then assistant chief of the Division of Vegetable Physiology and Pathology in the United States Department of Agriculture, investigated the Bermuda Lily Disease and described the symptoms which have since been recognised as those of a mosaic disease. The science of plant pathology was then in the cradle, however, and anything like systematic research into the diseases of Lilies in the Bermudan fields was out of the question. So matters drifted on until Mr. Ogilvie not only diagnosed the disease which is known on the island as "yellow flat," but discovered the carrier in an aphis. The source of infection found, it remained for control measures to be applied, and, happily, these have enabled the islanders to recommence the cultivation of L. longiflorum on commercial lines.

In the course of his investigation of the virus disease referred to, Mr. Ogilvie found another disease of a mosaic character, which may be the same as that found by Woods in 1897. The Bermudan growers had, therefore, to contend with Botrytis, the virus disease called "yellow flat," and a mosaic disease. In a climate like that of Bermuda, the first was seldom serious, the second is now under control, and the mosaic is in process of control by "roguing." Such progress has already been made in its control that last year a higher proportion of diseased plants than five per cent. was not allowed in the fields, and growers whose stocks showed a higher proportion of diseased plants were not allowed to export their bulbs.

The mosaic disease of the Bermuda Easter Lily, as L. longiflorum var. eximium is popularly called, has been the subject of a joint paper by Mr. Ogilvie and Mr. Carl Guterman*, from which it appears that while the disease spreads from infected to healthy plants, the agent by which it is spread has not been found. Attempts to transmit this mosaic disease to healthy plants by means of the aphis which is the culprit in the case of the virus disease of the Bermuda Lily have failed, as have attempts with other insects. No better success has attended endeavours to spread the disease by mechanical transmission or contagion, as doctors would call it, *i.e.*, by binding a diseased leaf on to the stem of a healthy Lily pared "to the quick," a method successfully followed in the transmission of a mosaic disease which is common on L. auratum.

It seems, therefore, that we must await the result of further investigation before the cause is revealed of a disease which, if not so widespread in Britain as Botrytis, is none the less very troublesome. Plants afflicted with the disease show definite symptoms, of which the principal is a light and dark green mottling of parts of the leaves in a mosaic pattern which gives its name to the disease. The tips of the stems and some of the leaves are usually distorted and the plant is often stunted. It is understood that once a bulb has become infected with the disease it never recovers.

At one time it was thought that the only disease of Lilies which mattered in this country was Botrytis, and it is still by far the most troublesome; indeed, in many places the cultivation of L. candidum has had to be given up because it falls a victim to the fungus so readily. The symptoms are well-known and are never in doubt, but the incidence of the disease depends on the weather, for moisture is essential to its progress. In a hot, dry season it does no harm, and so we have the familiar phenomenon of good and bad Botrytis years, very much as we have good and bad years in the case of Potato disease.

There are other diseases of Lilies, however, than Botrytis, and these are particularly noticeable on imported bulbs of Japanese species, such as L. auratum and L. speciosum. The symptoms leave little doubt that a mosaic is present, and experience shows that bulbs which exhibit these symptoms never come to anything, and may as well be burned at once. It is important that sound bulbs should not come in contact with those that are diseased or with the soil in which the latter have been planted, or infection of the sound bulbs may result.

Until the last few years, Lilies have so rarely been cultivated under field conditions that little attention has been given to the diseases to which they are subject, and amateur growers in search of remedies have had to manage as best they can; but the recent introduction of field cultivation will doubtless bring with it problems in the solution of which growers will need the help of phytopathologists. Nothing can be done without research, and the splendid example of the Bermudan growers is a capital and convincing example of the value of it.

Growers of Lilies all over the world will learn with satisfaction that a Fellowship has been founded in New York with the co-operation of the horticultural society there, the Boyce Thompson Institute for Plant Research, Cornell University, and the New York Botanical Garden. Mr. Carl E. F. Guterman is the present holder of the Fellowship, and a summary of the work accomplished during the first year of the Fellowship—necessarily of a preliminary character—is published in the *Year Book* for 1928 of the Horticultural Society of New York. The progress of the investigations by the holder of the Fellowship will be followed with keen interest by Lily growers in this country. *A. Grove.*

**The Gardeners' Chronicle*, February 2, 1929, Vol. LXXXV, p. 82.

**Phytopathology* No. 3, March, 1929, Vol. XIX, p. 311.

THE GENUS PRIMULA.

(*Continued from p.* 466, *Vol. LXXXV*).

OREODOXA (Franch.). Mountain Chinese P.
(Obconica.)

THIS deciduous perennial species produces a tuft of hairy leaves, with oval-oblong blades about one inch long and one-and-a-quarter inch wide, rounded at the base, borne on somewhat slender, hairy stalks up to one-and-a-half-inch in length; margins irregularly toothed. Flower stem rather slender, hairy, one inch to two inches long, bearing an umbel of four to seven rose-coloured blossoms on slender stalks up to three-eighths-of-an-inch in length. Corolla half- to five-eighths-of-an-inch across; lobes broadly heart-shaped, notched; tube about five-eighths-of-an-inch long, much longer than the calyx. Not in cultivation.

Grows in shady places on the mountains near Mupin, in Yunnan, western China.

Culture: As for P. obconica.

ORESBIA (Balf. f.). Cut-leaved P.
(Souliei.)

An attractive, graceful, perennial sub-species of P. Souliei (Fr.), with a tuft of thin leaves about two inches long, with oval or elliptic blades about three-quarters-of-an-inch long, contracted into a wedge-shaped stalk; margins deeply cleft into oblong, toothed lobes each terminating in a sharp point; upper surface green, covered with obscure, capitate glands; underside covered with intensely white meal. Flower stem four to five inches tall, densely covered with white meal, fairly stout, erect, bearing a somewhat one-sided umbel of five or six slightly nodding, lilac flowers. Corolla more or less concave, about half-an-inch across, densely covered with white meal; segments broadly heart-shaped, bifid; tube cylindrical, about three-eighths-of-an-inch long.

Grows in rocky pastures near the summit of Yo-Chow, in Hunan, at about 10,000 feet above sea-level.

Culture: Good fibrous, calcareous loam, in a moist but well-drained open spot, is suggested.

ORESTORA (Craib). Bhutan Hill P.
(Denticulata.)

A dwarf biennial, or at times perennial sub-species of P. atrodentata (W. W. Sm.), with a rosette of pale green, spathulate or oblong-spathulate leaves about one inch long springing from a small rootstock clothed with the dried remains of the leaves. The blades are elliptic or elliptic-oblong, rounded at the tip, with their margins revolute when young, flat when mature, and furnished with regular, sharp, saw-like teeth; upper surface convex, clothed with minute, meal-producing, glandular hairs; underside densely covered with white meal. Flower stem one-and-a-half inch to three-and-a-half inches tall, densely covered with white meal above and bearing a head of about nine stemless, erect, purple blossoms with yellowish-white tubes. Corolla about half-an-inch across, flat, with egg-shaped, bifid lobes; tube cylindrical, dilated upwards, about half-an-inch long. Flowers from May to July.

Grows in damp mountain pastures and on hillsides in peat in Bhutan and south-eastern Tibet, at about 16,000 feet above sea-level.

Culture: As for P. denticulata.

OSSETICA (Kusnetzow). Ossetien P.
(Farinosae.)

A dwarf, thin-leaved perennial species closely allied to P. auriculata; it produces a rosette of egg-shaped, or egg-shaped-spathulate leaves one to one-and-a-half inch long, rounded at the tip and more or less stalkless; margins furnished with narrow, blunt teeth; underside thickly covered with yellow meal. Flower stem one inch to three inches tall, bearing a few-flowered umbel of violet blossoms. Corolla half- to five-eighths-of-an-inch across; lobes heart-shaped, very deeply notched; tube cylindrical, about as long as the calyx.

Grows in damp, open situations, in the alpine regions of the central Caucasus.

Culture: As for P. farinosa. *A. W. Darnell.*

(*To be continued*).

PLANTS NEW OR NOTEWORTHY.

KNIPHOFIA ARUSSII.*

THIS new Kniphofia (Fig. 6) is from the Arussi Mountains (7,000 to 9,000 feet), of Abyssinia. Seeds were collected by Mr. Peter Haig-Thomas in October, 1913.

The leaves are long, narrow, tapering, glaucescent-green, glabrous, folded at the midrib, channelled on the upper and bluntly keeled on the lower face; margin finely serrulate on the younger leaves, but with a narrow, even, transparent, cuticularised margin when older; 1m. long, 1·6 to 1·8 cm. wide in the lower (widest) part. Peduncle smooth, dull green below, becoming suffused with dull red above the middle, 9 dm. long to base of raceme, 1·5 cm. thick at base, tapering to 1·3 cm. above, with two leaf-like bracts, 28 cm. and 7 cm. long, respectively, above the middle, and scattered veined bracts in the upper part, 12 to 9 mm. long. Raceme very densely flowered, 15 cm. long, ending in a short tuft of dense, scarious bracts. Floral bracts scarious, pale brown, triangular, acuminate, the mid-rib forming a darker, blunt keel on the back running up to the tip, 9 to 7 mm. long except at the tip of the raceme where they are shorter. Pedicel up to 3 mm. long. Flowers deflected; bud club-shaped, slightly constricted above the base, at first pale yellow with an orange tinge on the upper part, pure yellow before opening, about 18 mm. long. Open perianth narrowly funnel-shaped above the slight constriction, 2 cm. long; lobes broadly triangular-ovate, obtuse, erect, 4 mm. long; perianth very pale yellow, with a narrow, darker mid-line continued into each lobe. Stamens yellow, exserted, of different lengths, the longest, after anther-dehiscence, projecting nearly as far as the length of the perianth. Style yellow, straight, almost filiform, tapering to the minute papillose, capitate stigma, ultimately 3 cm. long and projecting to the level of the longest, now withered stamens. Ovary 3 mm. long, narrowly ovoid in general outline, green.

This new species belongs to Berger's section Densiflorae.† It differs from the other two Abyssinian species of the section, K. foliosa, Hochst. and K. densiflora, Engler, in its long, narrow leaves. The leaves of K. foliosa reach 9 dm. in length, but are 4 cm. to 5 cm. wide at the base, while those of K. densiflora reach 5 dm. long, with a width of 2 to 3 cm.

The seeds of this plant were collected in the Arussi mountains by Mr. Peter Haig-Thomas, and sent home to his mother, Mrs. Rose Haig-Thomas, who raised plants at Ringwood, one of which was exhibited before the Royal Horticultural Society in 1916; this specimen (the type) is preserved in the British Museum Herbarium. Mrs. Haig-Thomas also gave seeds to the John Innes Horticultural Institution, where plants were raised by the late Mr. E. J. Allard, from whom I obtained a second specimen in October, 1917.

Mr. Allard wrote as follows (November, 1917):

"I raised about a dozen plants which were planted in an open spot, and most of them attempted to put up scapes late in the second year. All the scapes were destroyed by frost before reaching the flowering stage, but the plants did not suffer. I then removed all the plants to the shelter of a warm greenhouse wall, with the hope that they would flower earlier in the season. One scape was noticed to be coming in October. I potted the plant at once and placed it in a cool greenhouse and the scape you have is the result. Although the plant seems to be as hardy as most Kniphofias, its flower scapes appear too late in the season to attain full development in the open. . . . There is no attempt at a stem below the leaf tuft. . . . I might say that all the seedlings are very uniform in vegetative character. The general aspect of the plant is very ragged owing to the upper half of the flaccid leaves hanging limp, as if flagging for want of water."

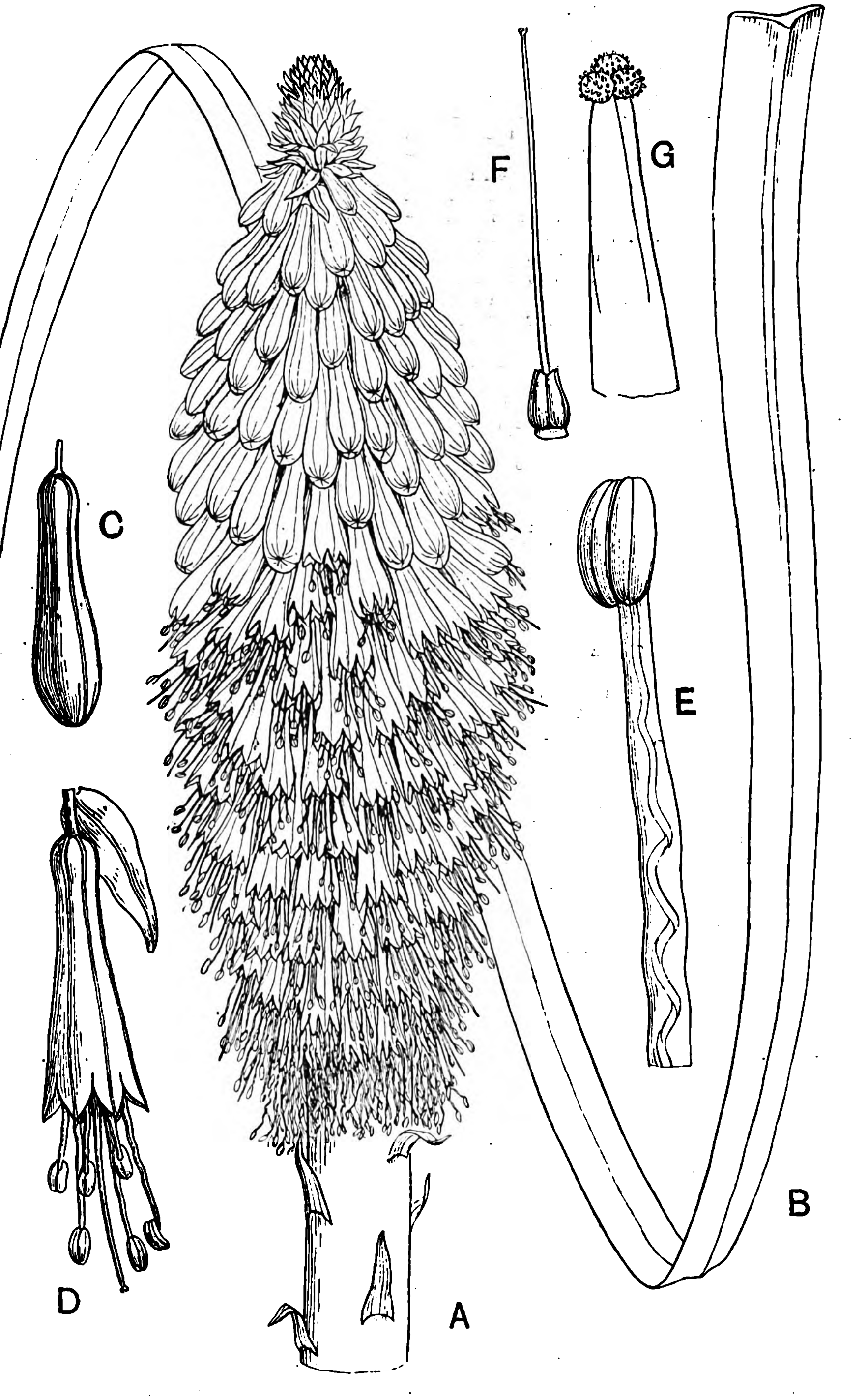

FIG. 6.—KNIPHOFIA ARUSSII.

A.—Raceme; B—portion of leaf, natural size; C—flower-bud; D—flower; E—stamen; F—pistil; G.—upper part of pistil with style, more enlarged; C-G—enlarged.

My description was drawn up from the living specimens supplied by Mrs. Haig-Thomas and Mr. Allard, and the drawing was made by the late Mr. Percy Highley from the second specimen in October, 1917. Description and specimens were laid aside until recently. I am indebted to my assistant Mr. J. E. Dandy who has kindly compared the material of the genus in the Kew Herbarium. *A. B. Rendle, British Museum (Nat. Hist.), June 22, 1929.*

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* Kniphofia Arussii, Rendle, sp. nov. *Folia* numerosa metralia lineari-angustata, apice subacuta, dorso obtuse carinata, multinervia, ad margines anguste cartilagineos juventute serrulata demum laevia. *Pedunculus* validus 9 dm. longus, bracteis binis foliaceis instructus et in parte superiore bracteis scariosis sparsis deltoideis acutis vestitus. *Racemus* densissimus, dum florens anguste obovoideus, 15 cm. longus, bracteis scariosis pallide brunneis acuminatis uninervius; pedicelli brevissimi deflexi. *Florum* gemmae luteae cylindrico-clavatae, supra basin leviter constrictae. *Perigonium* super constrictionem tubuloso-infundibuliforme, 2 cm. longum, lobis 4 mm. longis late triangulari-ovatis obtusis, pallide luteum colore saturiore lineatum. *Stamina stylus que* valde exserta.

† See his account in *Das Pflanzenreich*, Liliaceae-Asphodeloideae-Aloineae, 1908.

FASTIGIATE AND PYRAMIDAL TREES.*

OF the aberrant types of hardy trees, those with pendulous branches are probably the most popular in gardens, especially as isolated specimens on lawns. They are often, indeed, very attractive, particularly in association with the straight lines of buildings; some of them also make pleasant shady arbours for garden seats in summer time.

The value of fastigiate trees, with their slender, erect, often rigid shape, on the other hand, resides entirely in the effect they produce in the landscape. On a level, uniform tract of land, like that of Kew, they fill an attractive

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rôle in relieving flat, comparatively low masses of vegetation. One cannot walk around the Gardens without feeling how much the landscape owes to the Lombardy Poplar—the commonest and perhaps the best of them all. How greatly, for instance, the charms of the Lake are heightened by groups of this tree at the south-west end.

Nearly every common tree has produced a fastigiate, or at any rate, a pyramidal "sport." The Ash, the Lime and the Sycamore are exceptions and, except for a single tree at Aldenham, the common Elm appears to be another. The genus Ulmus, is, however, well represented in this respect by the Wheatley Elm, one of the U. nitens group. There already exists in Kew a practically complete collection of these trees (apart from Conifers), but they are growing in their respective collections and a general inspection of them would necessitate a rather lengthy pilgrimage. In view of the interest taken in them by tree-lovers at the present time, it has been thought desirable to assemble as many as possible in one readily accessible spot, so a commencement has been made on the western side of the Kew Palace Lawn, not far from the Sundial, where several trees of various kinds have been planted recently. To these it is proposed to add as occasion offers.

Fastigiate trees are not planted so freely as they might be in small gardens in the outer suburbs of London and other cities, where space for the typical forms is not available. A selection of a few of the best would add greatly to the interest of such places, besides providing an agreeable diversity in the vegetation. They are also especially adapted for planting on the sides of roads, where there is insufficient space for the ordinary type of tree.

Although fastigiate trees are usually, and most conveniently, propagated by grafting or by cuttings, some of them have the power of transmitting their distinctive peculiarity to their progeny raised from seeds. The Cypress Oak, for instance, raised from its own acorns, comes partially true, and the Lombardy Poplar, although a male tree, has, by means of its pollen, transmitted its columnar shape in some measure to its hybrid offspring.

Whilst most fastigiate and columnar trees are aberrant forms, a certain number of genuine species assume the same shape; among them may be mentioned Acer Lobelii, Libocedrus decurrens, Prunus Simonii, Ulmus stricta (the Cornish Elm), Magnolia salicifolia and Acer glabrum.

The commonest of all fastigiate trees is the Lombardy Poplar, Populus nigra var. italica. Its abundance is due to the facility with which it can be propagated by cuttings and its consequent cheapness, also to its easy cultivation and adaptability to different soils and climates. The facts of its origin are not precisely known and can now only be guessed at, but it seems to have appeared first on the banks of the river Po, probably (according to Henry) early in the eighteenth century. It is believed to have been introduced to England by the Earl of Rochford in 1758. It is now spread widely over the temperate regions of both hemispheres, attracting and pleasing the eye wherever it may be by its dominating height and slender shape.

It is similar to the ordinary Black Poplar, P. nigra, in leaf and twig, although occasionally pubescence may be found on the bark and leaf-stalks of vigorous young shoots. When young it has a tapering, spire-like form, becoming columnar with age. The true Lombardy Poplar is always male.

It was introduced to France in 1749 and eventually became popular as a road-side tree there. Lately it has given place in that country to some of the hybrid Poplars. Writers of historical novels are occasionally guilty of an anachronism in describing it as lining the French roads in Plantagenet times. It is now being planted in considerable numbers along the new arterial roads of England in flat, low-lying, moist localities, and in such places should provide very striking effects in a few years' time. A very frequent application to Kew is for advice in regard to the best tree to plant for hiding from view unsightly buildings or other objects that have suddenly sprung up within sight of the applicant's windows. For accomplishing this quickly, we are unable to recommend anything better than a double row of Lombardy Poplars. They form a complete screen when in leaf, and although not so efficacious as an evergreen would be in winter, the branches are clustered so closely together that they make, even then, a useful screen. In good moist soil they are capable in their early years of increasing in height at the rate of six feet annually.

Although the true Lombardy Poplar, as noted above, is a male, there are trees approximating it in shape which are female. There is one near Kew Palace which often sheds its cottony inflorescences during the summer; it is not so slender in shape as the male and may have originated as a seedling from a female Black Poplar fertilised with the pollens of the Lombardy.

The Director informs me that he noticed a large Lombardy Poplar in the Botanic Gardens, Christchurch, New Zealand, with a sporting branch high up on one side showing a loose, spreading branch like that of the ordinary Black Poplar. Photographs and specimens of the tree have been sent to Kew by Mr. James Young, Curator of the Christchurch Gardens. Mr. Young writes that he has struck cuttings from the sporting branch and that the plants, which are now three years old, do not show any signs of the fastigiate habit. This occurrence appears to be unique.

In Algeria the Lombardy Poplar develops a remarkable white bark on the trunk and the same thing has been noticed in Asia Minor and Serbia. Mr. L. A. Dode, of Paris, has named these white-stemmed Poplars P. thevestina, but they do not differ in botanical characters from the Lombardy Poplar. The white bark is probably due to some climatic condition; trees raised from cuttings brought from Algeria by the Director in 1910, and now growing in the collection of Poplars, show very little development of this character as yet.

P. nigra var. plantierensis originated as a chance seedling in the nursery of Messrs. Simon-Louis, at Metz. Similar in growth to the Lombardy Poplar, it is distinguished by its pubescent leaf-stalks and young shoots, for which reason it is assumed to have originated as a hybrid between the Lombardy Poplar and var. betulifolia, a variety of the Black Poplar marked by the same pubescence. A tree of var. plantierensis in the Poplar collection is thirty-eight feet high.

P. alba var. pyramidalis, "Bolle's White Poplar."—Compared with the Lombardy Poplar in mode of growth this tree, although quite fastigiate is considerably wider in proportion to its height. It is, of course, a form, differing only in habit, of the "Abele" or common White Poplar. It appears to be of natural origin and to have first been noticed in 1841, "forming a little grove on the bank of a brook on the north side of the Karataw Mountains between Bokhara and Samarcand" (*Garden*, December 10, 1887, p. 543). A tree at Kew near the site of the Sun Temple was measured by Elwes and Henry in 1910 and was then sixty-seven feet high; they regarded it at that time as the finest in England. It is now well over seventy feet high with a trunk girthing six feet nine inches. The pure white undersurface of the leaves gives a lively effect when they are moved by the wind and the tree may be regarded as one of the most ornamental of these fastigiate trees.

Acer saccharum var. monumentale is a very distinct variety of the Sugar Maple, introduced from the United States to Kew in 1888. It is now thirty-one feet high and two-and-a-quarter feet in girth of trunk. It is notable for its columnar shape, due to the shortness of its side branches, which take an upward direction but are not strictly fastigiate.

A Maple of somewhat similar growth is Acer Lobelii, but this is a good species, native of South Italy. It is related to the Norway Maple (A. platanoides), of which it has, by some authorities, been made a variety.

Aesculus Hippocastanum var. pyramidalis is a well-marked form of the common Horse Chestnut, with stiffly erect branches. It is, however, of a broadly pyramidal shape and not at all columnar. There is a good example in the collection near the Refreshment Pavilion, twenty-five feet high.

Alnus incana var. Balfourii.—We have recently received from Mr. F. R. S. Balfour a parcel of grafts with an accompanying letter, dated April 5, in which he says: "When in Norway two years ago, fishing in the Gloppen River, I found a tree of Alnus incana quite fastigiate and growing wild in a thicket. I marked it down and hearing that you are forming at Kew a separate collection of fastigiate trees, I wrote to Norway with the result that this package of twigs has been sent to me by Mr. Siverston, of Sandané, Nordfjord." The twigs have been used both as grafts and as cuttings and we trust this interesting Alder may be added to our collection in due course. It appears to be a quite new addition to fastigiate trees.

Betula verrucosa var. pyramidalis.—This, the fastigiate White Birch, is one of the most conspicuous trees in the collection at Kew. The best example, obtained from the nursery of Messrs. Dickson, of Edinburgh, in 1878, is sixty feet high, of slender columnar shape, with a trunk girthing three feet two inches. The variety is rarely seen in gardens, but is certainly worth planting as one of the most effective of fastigiate trees.

Cárpinus Betulus.—There are two fastigiate forms of the common Hornbeam—columnaris and pyramidalis. Both are characterised by a thick clustering of erect branches and twigs, but the former is the more slender of the two and would make a useful street or wayside tree.

Crataegus monogyna var. stricta.—This curious variety of the common Hawthorn produces a dense head of erect branches which is very distinct from the typical tree. It can scarcely be called elegant, as its shape is in no way slender, but rather broad and massive. There are two trees, the larger thirty-two feet high, which have long been in the collection of Thorns at Kew, and which flower with all the freedom of the common Hawthorn.

Castanea sativa var. pyramidalis.—The only form of Sweet Chestnut known to us that approaches the pyramidal shape is one which was found by the late Mr. W. Goldring in the grounds of Mount Mascal, Bexley, Kent. He obtained grafts for Kew and it is now represented in our collection by a young tree twenty-two feet high. It is not strikingly pyramidal, but its branching is erect enough to distinguish it amongst its allies.

Fagus sylvatica var. fastigiata, the Dawyck Beech.—The representatives of this Beech at Kew have all been raised from grafts presented by Mr. F. R. S. Balfour, in whose garden at Dawyck, near Peebles, a tree has long been growing. It is the only old specimen known to us in the British Isles, and is figured by Elwes and Henry in *The Trees of Great Britain and Ireland*, Vol. vii, plate 406, under the varietal name Dawyckii. The name, however, must give place to the older one given above.

The Dawyck Beech is a slender, strictly fastigiate tree, and Mr. Balfour's specimen is over fifty feet high; except for a thick cluster of branches which give it a broad, bushy base, it is very like a Lombardy Poplar in form. The young trees at Kew, the largest of which is thirty feet high, are of even more slender shape. The leaves are smaller than those of common Beech. Mr. Balfour informs us that his tree originated in the neighbourhood of Dawyck, and it possibly differs from the Beech originally named fastigiata by Koch, which I have not seen.

Koelreuteria paniculata var. fastigiata.—In April, 1888, Miss Corner, of The Grove, Hammersmith, sent some seeds labelled "Koelreuteria paniculata" to Kew with the information that they came from Shanghai. From them was raised a tree now growing in the collection of Sapindaceae near the Ruined Arch. It is twenty-eight feet high and one of the most strictly fastigiate trees in Kew, the spread of the branches being only thirty inches at the widest part. I can find no record of a fastigiate Koelreuteria in the standard works of Elwes and Henry, Schneider or Rehder. It would seem probable, therefore, that this rather remarkable tree has originated at Kew.

Liriodendron Tulipifera var. pyramidale.—All the forms of the Tulip Trees are interesting on account of the unique shape of the leaves among hardy trees, and this one, with its erect branches, is doubly so. It is a slow-growing tree compared with the type, and the largest one at Kew is only twenty-two feet high, although it has been grown in the collection of Magnoliaceae in the Berberis Dell for nearly thirty years. The finest tree known to me is in the old-established nursery of Messrs. Simon-Louis, at Metz; when I saw it there over twenty years ago it was a shapely spire thirty feet high.

Morus alba var. fastigiata.—This variety of White Mulberry has a narrowly pyramidal shape and is further distinguished from the type by the leaves being often more than usually lobed. At Kew, like other forms of White Mulberry, its young shoots are almost invariably cut back by winter frost, and this depreciates its value as an ornamental tree.

Prunus Lannesiana var. erecta.—This is a very curious form of the Japanese Cherry, forming a cluster of perfectly erect stems. It is known to Japanese gardeners as "Amanogawa." The flowers are pale pink, single or semi-double, fragrant, and it has the distinction, rare among the Japanese Cherries at Kew, of producing occasionally quite good crops of small, black fruits. Wilson describe it as "very beautiful," but I have not seen any trees in this country that deserve that epithet, although Mr. Lowinsky used to grow a goodly number of them in his garden at Tittenhurst, Sunninghill.

Fastigiate trees belonging to the genus Pyrus occur in the Rowan (*P. Aucuparia*), and in *P. pinnatifida*, both of which are attractive trees in their ordinary shape. These varieties only differ in their narrow shape, but this may enable gardeners whose space is restricted to find room for them.

Quercus pedunculata var. fastigiata.—This, the "Cypress Oak," occurs in a wild state in several localities in France and Spain, and a tree at Herrenhausen, in Hesse Darmstadt, originally found in a forest there, was doubtless also of natural origin. This tree was described and figured in *The Gardeners' Chronicle* for 1842, p. 36, and measured at that time nearly ninety feet in height and nearly twelve feet in girth of trunk. It appears to have been the parent of many continental and English trees, but is probably no longer in existence. A fine specimen in the park at Wilhelmshöhe, near Cassel, which originated as a graft from this tree, is now over 100 feet high. There are several trees at Kew, the best of which is fifty-five feet high; it was planted in the collection of Oaks in 1871, and in 1897 was about forty-five feet high. It is not, therefore, a quick grower. The habit of the tree is slenderly columnar. As has been mentioned previously, it comes true to a small extent from seed, and some sub-varieties have been raised in this way; sub-var. contorta has its young branches crooked and twisted, and sub-var. Grangei is a seedling that has partially reverted to the type and thereby becomes pyramidal rather than columnar. Except that it is slow-growing, the Cypress Oak would be useful as a roadside tree, especially where lateral space is restricted. In such a place it would not only make, eventually, as striking a feature as the Lombardy Poplar, but would be likely to have a much longer life.

Robinia pseudacacia var. fastigiata.—This remarkably distinct form of the common Acacia or Locust Tree is one of the most slender in habit of all this class of tree. A good example in the collection of Leguminosae at Kew near the Pagoda is fifty-five feet high, and eight feet in width. I do not know whether its origin is anywhere recorded, but it has been in existence for at least eighty years. It is, nevertheless, one of the rarest of these fastigiate trees.

There is a variety of the common "Acacia," known as monophylla, in which the number of leaflets to each leaf is reduced often to one (but also to two or three). This also has sported into a fastigiate form (monophylla fastigiata). It is not so slender as the other.

Elms.—The "Wheatley Elm," Ulmus stricta var. Wheatleyi, is the best known and most valuable of pyramidal Elms and is now being extensively planted as a roadside tree. There are two forms in cultivation that differ in habit, one having a much closer, more erect branching than the other. The best tree at Kew, obtained from Messrs. Lee's nursery just fifty years ago, is now sixty feet high and four feet four inches in girth of trunk. An even finer one grows in the Terrace Gardens at Richmond. There is also a yellow- leaved form of the Wheatley Elm.

Ulmus montana has a variety called fastigiata that is commonly known as the "Exeter" Elm, through having been found in or near that city by a Mr. Ford about 1826. There is a fine tree of it in the Vicarage garden at Bitton, near Bristol, seventy feet high. Its branches grow erect and the leaves, smaller than in the type, are often clustered at the end of the shoot. On the whole it is not particularly attractive.

The commonest and best known of all evergreen fastigiate trees is the Irish Yew, which, as is now well known, was first found in the mountains of Fermanagh about 1780. Presumably it was of natural origin and grew from seed on the spot where it was discovered, but it is curious that two plants of the same mode of growth were found. Aberrant forms of seedling origin usually come as individuals. Both the wild plants were transplanted, one to the garden of the man who found them, the other to Florence Court. The former died, but the latter still lives and is the ultimate source, no doubt, whence most or all the Irish Yews that now exist were derived. In the young state the plant is of columnar form, but with age becomes broad at the top, sometimes of an inversely pyramidal shape. In old gardens it has often been planted in avenues or formal arrangements, but although entirely distinct from any other tree, the effect of a number of specimens in association is rather dismal. It has sported into a sub-variety with golden young leaves called fastigiata aurea.

The Florence Court Yew is a female and its flowers, when fertilised with pollen from common Yew, have produced seeds from which plants have been raised that show its influence in an intermediate type of growth. The variety called cheshuntensis is one of them.

In the *Kew Bulletin*, 1927, p. 254, there is an account of the discovery by Mr. W. H. B. Fletcher, of Aldwick Manor, Bognor, of a considerable number of male plants of Irish Yew growing in his neighbourhood. All of them appear most probably to have been obtained from the Barnham Nurseries, Ltd., near Bognor, where Mr. Fletcher found, in 1927, some male specimens of the golden form still in nursery quarters. But how or whence the firm originally acquired them is no longer ascertainable.

Another and fairly well-known member of the Yew family, fastigiate in growth, is Cephalotaxus pedunculata var. fastigiata. It is of Japanese origin and was introduced from that country in 1861. Like the Irish Yew it is columnar in youth, but becomes broad-topped with age. It is, of course, very distinct in its larger, longer leaves.

Two very well-known fastigiate trees amongst Conifers are Cupressus macrocarpa var. fastigiata, a form of the "Monterey Cypress," and C. sempervirens var. stricta, the "Italian Cypress." Both these are much better known in gardens than the types from which they have sprung, and both of them survive our winters at Kew, although they are not really vigorous there. This may be due, however, more to atmospheric influences than to climatic ones. A few trees of a form of the Italian Cypress recommended to us some years ago as being more hardy than the ordinary form have been planted on the south side of King William's temple. They are of very slender shape, have grown well, and up to the present have justified their recommendation. To travellers in Italy and other parts of South Europe the dark, slender spires of this tree constitute one of the most abiding memories.

The fastigiate form of C. macrocarpa is much grown in the milder parts of Britain. It grows very rapidly, makes a useful wind-break, and it is sometimes used to form tall hedges.

Of the Lawson Cypress (Cupressus Lawsoniana) there are several erect-growing, slender varieties, the most popular of which are Allumii, spire-like in shape and wholly glaucous; and erecta viridis, green and much more vigorous, and, in places where the Italian Cypress is too tender, a good substitute for it. Even better, perhaps, is the var. Drummondii, admirably represented in Mr. Neville Cooper's Pinetum near Canterbury, but apparently very uncommon.

A slender columnar variety of Thuya plicata, called fastigiata or pyramidalis, is a distinct and quite attractive form. It is represented at Kew by a tree thirty-five feet high.

Abies pectinata var. pyramidalis is a spire-like tree of arresting shape and appearance, but, like its type, it refuses to exist in the lower Thames Valley. There used to be (perhaps is now) a fine example of it in Lavallée's Arboretum at Segrez, in France; it was thirty-five feet high when I saw it there over twenty years ago. There is a similar variety of common Spruce—Picea excelsa var. pyramidata—which makes a slender pyramid.

Three forms of common Juniper are to be included in this group of trees, viz., Juniperus communis var. hibernica, J. c. var. suecica and J. c. var. compressa. The two former are similar in their tall, slender, columnar shape, and by some authorities are considered identical, but suecica is kept separate by nurserymen on account of the pendulous terminal twigs. The variety compressa, of very slow growth, is distinct from any other tree or shrub, forming as it does a dense mass of branches and silvery-grey leaves of rigidly slender, erect shape; a plant may take twenty years to grow a little over one foot high. It makes an extremely effective little shrub for the Rock Garden.

PUBLIC PARKS AND GARDENS.

The new portion of the Tabard Garden, Southwark, south London, which has been in process of formation for the past twelve months, has now been formally opened, and the whole space, amounting in all to five acres, which was acquired by the London County Council for the purpose in 1926, is open to the public. This garden is on the site of several noisome slums, the district being known as the Tabard Street area, in early mediaeval times interesting on account of its being the starting point of the pilgrimages to Canterbury immortalised by Chaucer, but in recent times notorious for its dirt, poverty and squalor. The ground is largely turfed, with a border of ornamental shrubs and flower-beds; there are also two hard-court playgrounds, one for girls and one for boys, with a smaller one for infants, provided with a sand pit and swing cradles. For the elder children there are eighteen swings, three trapezes, three pairs of rings, a dry chute, a "merry-go-round," parallel bars, and other gymnastic appliances, while drinking fountains and shelters for use in wet weather are close at hand. The slums around the garden are still being cleared, and blocks of model dwellings erected, so that when the scheme is completed, something like a "garden suburb" in one of the most crowded, and formerly one of the poorest, districts of London, will have been created.

The Duke of Norfolk, who has a large estate in Sheffield, has presented to the Sheffield Corporation, in commemoration of the attainment of his majority, the Monument Grounds, Norfolk Road, Sheffield, for use as a public recreation ground. The grounds, which for some years have been leased to the Corporation at a nominal rent by the Duke's trustees, cover about four acres and are attractively laid out.

The Middlesex County Council has agreed to make a grant of £1,395 towards the cost of the acquisition of land at Wood End Green by the Hayes Urban District Council for an open space.

The Wirral (Birkenhead) Rural District Council has under consideration a scheme for the reservation of 823 acres in twelve parishes for open spaces.

A ROOT DISEASE OF THE STRAWBERRY.

During the last few years, growers of Strawberries in Scotland and England have been considerably troubled by the dying out of the plants in the field. In Scotland the trouble has assumed especial importance in Lanarkshire, and has come to be known in some quarters as "The Lanarkshire Strawberry Disease," as if a single specific disease was accountable for the whole of it. It is, however, possible that the so-called Lanarkshire disease is not a single one, but a congeries of diseases, of which that here described is merely one. There is, as yet, no evidence that this particular disease exists in England.

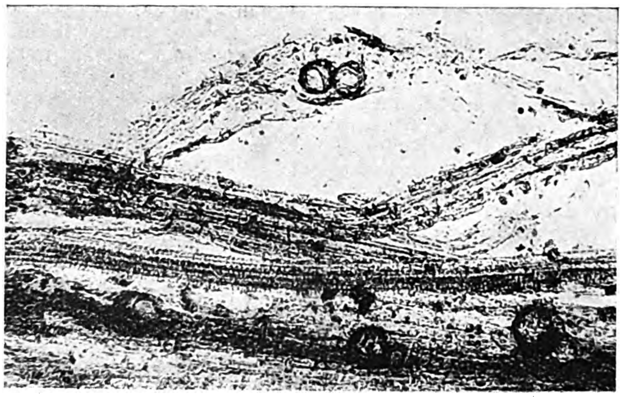

FIG. 7.—STRAWBERRY ROOT DISEASE.
Oospores *in situ*, in the central cylinder of the root; slightly teased out.

At the Royal Botanic Garden, Edinburgh, the writer has been engaged since last October (1928) in examining Strawberry plants forwarded to her by Mr. Dudley V. Howells (West of Scotland Agricultural College), who has been keenly interested in Strawberry troubles in Scotland for some time. In all, about fifty batches of plants, diseased and normal, have been examined. The diseased plants were received at approximately fortnightly intervals from October to June (1929), but the severe frost caused some interruption in the work and disturbed the regularity of the series. Including both healthy and diseased, about 250 individual plants, in all, have been examined. About one half of the batches came from the Lanarkshire area, and were selected by the sender as being definitely diseased. The other half were from the Isle of Man, north-east Scotland and the Edinburgh district, and were either selected as being definitely healthy or were, at most, regarded as being under slight suspicion.

In the diseased plants (105 in number), the characteristic signs of disease were present in every plant of every batch. The roots, or some of them, showed a definite die-back from their tips, a marked absence of laterals, of "fibrous" root formation, and, less commonly than the tip die-back, intercalary lesions, *i.e.*, discoloured areas on the surface tissues of the root, not involving the tip. The appearance of the diseased roots was very characteristic. The pale, new and rather stout adventitious roots that are put forth in late summer and autumn are those in which the disease is most clearly evident. They turn greyish-brown, the discoloration proceeding from the tip backwards.

In the tissues of the central woody cylinder of such decaying roots a fungus was invariably found. It was also found in the spring, in an apparently more active condition, in the small lateral roots that had developed meanwhile from the adventitious roots mentioned above.

The Strawberry plant itself when attacked by this disease is stunted, and the outer leaves die off. They do not become detached but remain, brown and stiff, attached to the plant. In a very bad case all the leaves die, but still remain on the plant. Any green leaves that struggle on are small in size but normal in colour. Additional crowns usually appear, and the stock becomes rather woody, but the most characteristic symptoms appear, as already described, on the larger, younger roots and on the small laterals of the older main roots. One characteristic of the disease is, therefore, the absence of small roots. In a typical case the circle of pale adventitious roots below a crown suffers first; they become discoloured and the contrast between the pale upper parts of the roots and their darkened lower ends is very characteristic. Between the blackened tip and the pale, still healthy part of the root, a brown region invariably occurs, and it is in the central tissues of this region that the fungus alluded to is most readily discovered.

The fungus proceeds upwards, and the central cylinder becomes discoloured before the surrounding cortical tissues show obvious signs of change. Hence, on scraping away the cortical tissues of an affected root with the thumb nail, a reddish core is disclosed, and growers already recognise the disease in this way.

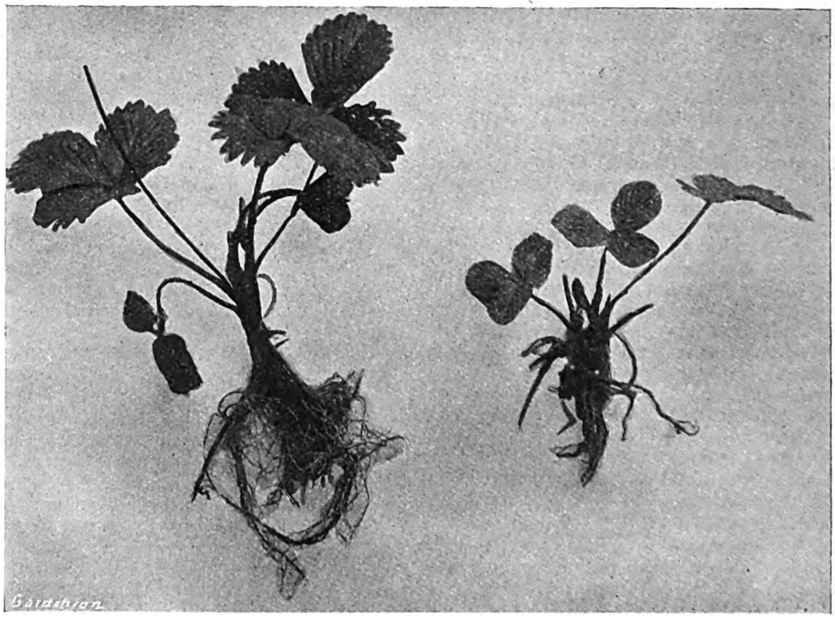

FIG. 8.—STRAWBERRY ROOT DISEASE.
Right.—Diseased Strawberry plant, artificially infected with Phytophthora. Left.—A control plant; no infection.

A constant feature of the decaying roots was found to be the presence in their central cylinders of what appeared to be thick-walled, resting spores of some fungus (Fig. 7). In some cases such spores were relatively few, but in many others they were quite abundantly present. In the earlier material it was difficult to make out details satisfactorily, but as more experience was gained and as better material came to hand, it became clear that what was present was a spherical, thick-walled spore lying within an envelope, the latter being oval or, in most cases, more or less Pear-shaped. Eventually it became clearly evident that what one was dealing with was a spherical oospore (33μ in diameter) lying within a Pear-shaped oogonium to which was attached, and clearly seen in several cases, an antheridium of definitely amphigynous type. Hence it was concluded that the fungus present was a Phytophthora.

The fungus described was found without exception in the roots of all the diseased plants and solely in them; and it was, therefore, suspected that it was the cause of the decay of the roots and the consequent stunting and ultimate death of the plants.

At the suggestion of Dr. G. H. Pethybridge, the following "infection trial" was made. To a pan of sand,* sterilised in the autoclave, portions of diseased roots (which microscopical examination had shown to contain the above described spores) were added. Seven young Strawberry runners (not from the Lanarkshire area), careful examination of which failed to disclose the presence of any disease, were planted in this mixture of sterile sand and chopped diseased roots and allowed to grow on (under glass) for six weeks. Examination at the end of this period showed that the tips of the roots of the runners, especially of the new ones that had arisen since planting, were discoloured and decayed for distances of from about one-eighth- to over one-quarter-of-an-inch from their growing points. Some of the laterals were also decaying. In the central cylinder of the diseased parts of the roots the Phytophthora was found again, both in the form of rather coarse non-septate mycelium, and of oogonia (containing oospheres or oospores) with amphigynous antheridia. Similar runners planted in similarly sterilised soil, but without the addition of chopped diseased roots, showed no decay of the roots. Figure 8 shows on the right one of the runners the roots of which became invaded by the Phytophthora, and on the left, the "control" runner.

When root material containing the parasite is placed in sterile water the fungus readily grows out and produces mycelium and sporangia with, occasionally, sexual organs. The sporangia are, on the whole, inversely pyriform, but they vary considerably in size and shape; when young they tend to be spherical (Fig. 9). No papilla is present, the apex of the sporangium being blunt, and the wall, in this region, thickened and hyaline. When a sporangium has emitted its zoospores, a second sporangium, with a longer or shorter stalk, may develop within it at its base (Fig. 10); and this process may be repeated. This behaviour is reminiscent of that described by Pethybridge and Lafferty* for Phytophthora cryptogea, and of that figured for the Phytophthora that causes the root rot of Richardia, in *The Gardeners' Chronicle*, Vol. LXXXI, 1927, p. 234, Figs. 116 to 119. It is quite possible that the present

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* The sand employed was that commonly used at the Botanic Garden for preparing potting soil. It is not a pure siliceous material, but is essentially an extremely sandy type of soil, and is, therefore, not entirely devoid of plant nutrient material.

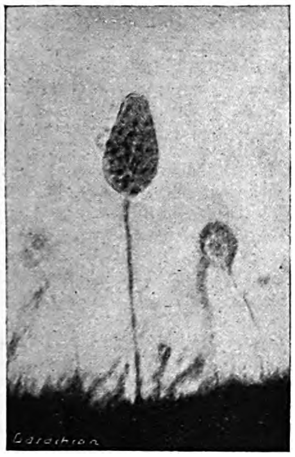

FIG. 9.—STRAWBERRY ROOT DISEASE.
Sporangium; Phytophthora type; immature sporangium on the right.

fungus may turn out to be a strain of the species named, for it appears to be a fairly common one and, the writer was informed, has recently been found at the Plant Pathological Laboratory of the Ministry of Agriculture and Fisheries at Harpenden, attacking two new hosts, viz., Tulip and Gladiolus.

The following data may be of interest to mycologists:—Oogonia average about 46μ to 47μ diameter; oospores average about 33μ to 47μ diameter; oospore wall about 4μ thick; sporangia about 50μ by 30μ.

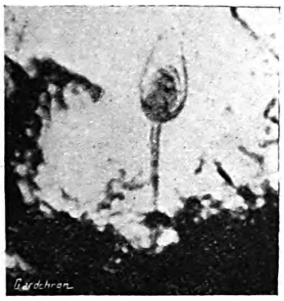

FIG. 10.—STRAWBERRY ROOT DISEASE.
Sporangium with a second one growing within.

In spite of repeated attempts, by various methods, all efforts to obtain the fungus in pure culture have so far been unsuccessful. They have been complicated by the frequent presence of an interesting species of Pythium that grows with considerably greater rapidity than the Phytophthora, but is believed to be merely a saprophytic camp-follower of it. Further work on the problem is planned, but it has seemed worth while to issue this preliminary note indicating that there appears to exist in the Lanarkshire area of Scotland a specific root disease of the Strawberry caused by a species of Phytophthora; and, if a common name is required for the disease, the designation "red core root" might very appropriately be applied to it.

In an investigation like the present, in the course of which help and guidance have been received from so many, it is difficult to acknowledge all. The assistance of the Imperial Bureau of Mycology and of the Cryptogamic Department of the British Museum (Natural History) is most gratefully acknowledged. Special help has been forthcoming from the Ministry of Agriculture's Plant Pathological Laboratory at Harpenden, of the staff of which the writer was formerly a member. Professor Wright Smith and Dr. Malcolm Wilson have both afforded assistance and encouragement, while special thanks are due to Mr. D. V. Howells and Miss Copeland for the assiduous supply of material for examination. *(Mrs.) N. L. Alcock, Department of Agriculture for Scotland, Royal Botanic Garden, Edinburgh.*

NURSERY NOTES.

MESSRS. JOHN PEED AND SON.

PERHAPS it would not be incorrect to state that by far the greatest amount of business done by this notable firm is in seeds and bulbs, which section of its activities has been greatly extended during recent years, so that there are now few parts of the world where the slogan "D'ye ken John Peed" is not known.

But besides specialising in seeds and bulbs, and plants and roots for forcing, Messrs. John Peed and Son conduct an extensive business in hothouse and greenhouse plants, and hardy plants of all descriptions.

At their Mitcham Lane nursery they have extensive collections of hardy climbers, and also grow large numbers of perpetual-flowering Carnations, pot Roses, Dahlias and bedding plants in general, and the Mordon nursery is devoted chiefly to Roses for outdoor culture, hardy ornamental trees and shrubs, fruit trees, and herbaceous and alpine plants, while at the headquarters of the firm, at West Norwood, London, S.E.27, the extensive range of glasshouses is devoted to the growing of a great variety of stove and greenhouse plants, which it was our pleasure to inspect quite recently.

Codiaeums (Crotons) are grown extremely well and in great variety at the West Norwood nursery, the extensive collection embracing such grand sorts as Eugene Draps, Edmontoniensis, Inimitabilis, Resplendent, Palais de Glace, Flambeau, F. Sander and Lady Zetland, while Dracaenas also are specialised in, sorts which we admired being Hybrida, very striking, Margaret Storry, His Majesty, Rubis, Edmontoniensis and Flambeau, all brightly coloured and very healthy.

There were grand flowering plants of various Liliums, and lovely Hydrangeas—the preparation dispensed by this firm, and known as Peed's Hydro-blue, would appear to be very effective in the production of fine azure-blue inflorescences—while such popular indoor subjects as Achimenes, in good variety; Plumbago rosea, Clerodendron Thomsonae, Bougainvilleas, of which the variety Mrs. Butt was very fine, and Nandina domestica, which makes a fine pot plant, also claimed attention during our tour of inspection.

Begonias of the Gloire de Lorraine type were being propagated by the thousand, and the many specimen plants of variously and brightly coloured Coleuses, also the Gloriosas, occupied prominent positions in the glasshouses, but grandest of all were the Streptocarpuses and Gloxinias, which filled several houses and were in full bloom, providing a veritable feast of colour.

Messrs. John Peed and Son have a grand strain of Streptocarpus, the results of years of selective work, and there would appear to be a big demand for their seeds, judging by the number of plants grown, and which we were able to see at their best. They embrace every shade of colouring, from pure white to deep crimson, with many delicate shades of salmon, lavender, lilac, and mauve to deep rosy-purple.

The Gloxinias, on the other hand, are all named, so that we were able to admire them individually and endeavour to select those which we considered of outstanding merit—a difficult task. However, it was impossible not to notice Fire King, whose velvety trumpets were vivid, orange-scarlet, and Brilliance, rich red, plum-shaded at the throat. E. L. Peed has rich plum-coloured blooms of grand form; Countess of Warwick is delicate pink with a white throat, and the frilled blooms of Mrs. John Peed are white, edged with rich lilac. Other sorts which made special appeal were Princess of Wales, Countess of Crewe, deep rose with a cream-coloured throat; Purity, clear white, without a blemish; Empress of India, with large, well-shaped, velvety, royal purple flowers; and Leslie Fletcher, purple spotted, with clear white margins.

In addition to the above collection, there were several striking unnamed seedlings—about 15,000 Gloxinia seedlings are raised each year at West Norwood—several of them being after the style of Brilliant, but distinct improvements even on that grand sort. Another notable seedling, of very good, compact flowering habit, had pale pink, spotted blooms, while yet another was red mottled, with a clear white margin.

It would take many pages to describe in full all that we admired at the West Norwood nursery of Messrs. John Peed and Son, and the high standard of production maintained. That such a high standard reaps its reward and is amply repaid is evidenced by the great expansion of the business of this firm during recent years, an expansion which has made necessary much reconstruction work at the headquarters, and this is now proceeding apace.

HOME CORRESPONDENCE.

Beschorneria yuccoides. — This interesting Mexican plant, a member of the Order Amaryllidae, is not often seen flowering profusely and it may therefore interest readers of *The Gardeners' Chronicle* to know that the specimen figured on p. 479, Vol. LXXXV, was planted in May, 1921 on a dry bank in poor, well-drained soil. The plant figured carried seven spikes and the longest spike reached a height of nine feet three inches. The red flower stems and green flowers are very effective. This particular plant is growing in the gardens of Villa St. George, Torquay, the residence of E. A. Le G. Starkie, Esq. *W. J. Powell, Villa St. George Gardens.*

Plants for Trial at Wisley.—In the report of the R.H.S meeting of June 25 and 26 (Vol. LXXXV, p. 481) three plants which were submitted to the Floral Committee and were recommended for trial at Wisley were inadvertently omitted. These were:—Delphinium Kelway's Lovely, with tall spikes of large, semi-double, milky-lavender and sky-blue, white-eyed flowers; Paeony Una Howard, semi-double, glowing reddish-carmine turning to pure carmine; and P. Gilded Splendour, a very large, handsome flower with deep rose-coloured guard petals and a huge cushion of broad, carmine petaloides, each one distinctly edged with gold. *The Reporter*

Exacum affine.—To my notes on Exacum affine in Vol. LXXXIV, p. 408, the following addition may be of interest. The plants raised from seeds commenced to flower in June and were estimated to continue until well into December; these expectations, however, were extended until the middle of February, giving a continuous display for eight months. This is a point worthy of consideration from an economic point of view. We have now a batch of plants, raised from cuttings, which began to flower early in May at the height of twelve inches. They were rooted in January in small pots of sandy soil—about five cuttings in each—in a tropical house propagating case, and were grown on under warm conditions until flowering commenced. Prior to being displayed in the conservatory, they were hardened to the necessary conditions. *Leonard G. Atkins, University Botanic Garden, Cambridge.*

Flowering Cherries.—My remarks as to the various authorities differing in their classification were meant to convey that the four authorities named were not *all* in agreement on every name of every species and variety, and not that Mr. Ingram differed from them in each and every species and variety. Personally, I feel he is the authority to follow among the Japanese Cherries to-day. I am glad to have his opinion as to the varieties Eva Gauntlett and Troiaya; it is what I expected. My mistake as to Ojochin and Hokusai being the same was stupid, as the matter is clearly explained in Mr. Ingram's last notes in the R.H.S. *Journal*. *Prunyrus.*

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* G. H. Pethybridge and H. A. Lafferty, *Sci. Proc. of the Royal Dublin Society*, XV (N.S.), No. 35, February, 1919.

The Sweetest-scented Flowers.—I do not think any of your correspondents on this subject have mentioned Azalea arborescens as the sweetest-scented flower. This, I think would stand high in the list with most people. To me, the Vine in flower is most decidedly sweet, likewise Azaleas, such as mollis and pontica; yet a visitor here complained that these were decidedly offensive to her sense of smell! *G. H. Dalrymple, Bartley.*

GARDEN MANURES FOR JULY.

Under organised systems of intensive manuring it is, perhaps, not sufficiently recognised that the possibility of losses, particularly of nitrates, by the leaching effect of rain is a problem for serious thought, for the prevention of the impoverishment of the soil from this cause must be a fundamental part of the system if it is to be completely successful.

In the present season of low average rainfall the losses will not be great, but one can never forecast what the rainfall may be a few days ahead, and if nitrates are in the soil awaiting absorption by the plant when the energy of the crop is not sufficiently great to effect complete absorption of the available supply, losses are bound to result if heavy precipitation occurs.

The ideal system of manuring would be one in which the optimum amount of the necessary ingredients for various crops could be determined and reduced to measure. For example, if one knew exactly the amount of nitrogen that a plant could absorb in a given time to elaborate a certain volume of growth, one need not apply too light a dressing of nitrogenous manure and leave the plant hungry, nor too heavy a dressing and run the risk of loss by leaching, but would be enabled to give the exact amount required. Even if this were possible, however, it could only be standardised in theory, for in practice so many other factors influence the result, and even under the best garden practice there is danger of losses from leaching.

But the factors which influence plant growth are so variable and intricate that not even the specialised plant physiologist can state what are the perfect conditions for any single cultivated plant, or race of plants, and manuring is only one of these factors; light, temperature, moisture, soil texture and cultivation, exercise in their way equal influence in a marked degree. Yet the interdependency of these factors is subtle; the true functioning of all and each is necessary in obtaining maximum crops, and under certain conditions any one of them may have a decided limiting effect on growth. Much remains to be learned on many of these intricate processes, but, in so far as losses of nitrates by the leaching effect of rain is concerned, there is abundant evidence to show that the danger is much greater on uncropped land than on cropped land; therefore, under intensive garden cultivations a point to remember is to arrange the succession of crops so that plots of land remain uncropped for so short a time as possible.

An adequate supply of nitrates in the soil is a primary essential for rapid growth and heavy crop production, yet no plant-grower likes to think of the possibility of this potential fertility being lost through leaching, and every effort should be made to adopt means to prevent it so far as present knowledge enables one to do so. For example, early crops of Spinach and Lettuce may have been intensively fed and a considerable residue may be left in the soil in the shape of nitrates which would give an immediate fillip to a succeeding crop, but might, on the other hand, be entirely lost should a heavy thunderstorm occur while the plot is still lying vacant. If, for any reason, the succeeding crop cannot occupy the plot immediately, it is far better to grow a quick-maturing catch-crop or a crop to turn in as green manure than to let it remain vacant. The use of green manure is well-known and apart from its value in adding food to the soil, it has the further potential value that the crop may prevent something being taken out.

Adverting to the various factors which influence plant growth, their interdependency, and the partial functioning of any one factor having a limiting effect on growth, many of the processes involved are so intricate and unseen that it is difficult to follow the working of them and recognise how they may be exercising a limiting effect on growth, but the water factor provides a simple example which is quite clear. Everyone can easily see that when it is withheld below a certain degree, and likewise, when it is given in excess, the plant suffers immediately. The optimum amount to supply then, varying, of course, with the type of plant, is to that point where no further acceleration of growth ensues, and beyond which growth is depressed. The manure factor, like all other factors, has its optimum amount, and although the results may not be seen so readily as in the case of water, they are just as definite and important.

In the case of nitrogenous fertilisers at the present season, considerable discretion should be exercised, as the general tendency of such fertilisers is to excite growth unduly and retard maturation of the crop. This might be a distinct disadvantage in the case of many crops, but all forms of nitrogenous manures have not the same degree of retardation, and if it is considered necessary to apply a nitrogenous fertiliser late in the season, ammonium chloride has a less retarding effect than sulphate of ammonia. The reason for this is not quite clear, but there are many subtle points in the action of various elements and their relation to plant nutrition. Here we have the element chlorine, which is not an indispensable plant food, and can be done without according to laboratory experiments, exerting an extraordinary influence on the behaviour and growth of the plant. Many such peculiarities occur in the intricate processes leading to plant nutrition and, much as research has revealed to us in recent years, there still remains much of economic interest to unearth. *W. Auton.*

FRUIT GARDEN.

ROOTING STRAWBERRY RUNNERS.

Those contemplating the renewal of stocks of Strawberry plants by obtaining runners from distant sources, may be interested in a satisfactory method of rooting the runners at home after receipt.

In the first place, the young plants for dispatch should be severed from the runners after they have made good leaves, but before they attach themselves to the ground. Tied up into bundles of twenty-five, a large number can be packed into a box, and sent by post. If the journey is longer than twenty-four hours, a little damp moss may be put around the basal end of each bundle, but it should be merely damp, not wet.

A shallow frame containing a few inches of sandy soil should await the arrival of the plants, which should be dibbled in, about three inches apart, so soon as received, taking care not to bury the eyes of the crowns. After a good watering, close the frame and afford shade from bright sunlight. If kept close, shaded, and syringed over twice daily, the plants will root quickly, and they should then be gradually inured to full sunlight and air, eventually removing the lights, after which they may be dealt with as desired—either planted out into the garden or potted up for forcing.

For some years past, I have sent 600 young cuttings in a single parcel a journey of forty-eight hours, and, treated as advised, they have given complete satisfaction, always making splendid forcing crowns during the season. The advantages of the method are that:—the cost, both of plants and carriage, should be less than in the case of rooted stock; delivery should be obtained early in the season—an important factor in successful cultivation, but not always possible in the case of rooted runners; and, the young plants, after rooting, are not subject to the damage and check entailed in packing and travelling. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

SOCIETIES.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The Eighty-fourth Annual Festival Dinner of this Charity was held at the May Fair Hotel, Berkeley Square, on Wednesday, June 26, under the presidency of Lionel de Rothschild, Esq., O.B.E. Among those present were Lord Aldenham, Sir Jeremiah Colman, Sir John Young, Mr. and Mrs. L. Bradbury, Mr. and Mrs. E. Sherwood, Mr. L. Sutton, Mr. Gerald Loder, Mr. Gordon Selfridge, Lieut.-Col. and Mrs. Durham, Sir James and Lady Slade, Sir Frederick and Lady Green, Mr. H. Greenwood, Mr. and Mrs. Robins, Mr. and Mrs. McLeod, Mr. and Mrs. George H. Barr, Mr. P. R. Barr, Mr. and Mrs. J. M. Bridgeford, Mr. and Mrs. C. H. Cook, Mr. W. Howe, Mr. and Mrs. H. Miles, Mr. and Mrs. Linford, Mr. and Mrs. W. O. Hiehle, Mr. and Mrs. J. Collingridge, Mr. D. Monro, Mr. A. J. Monro, Mr. and Mrs. Walter Turner, Mr. and Mrs. F. A. Secrett, Mr. and Mrs. D. Ingamells, Mr. and Mrs. A. Bullock, Mr. and Mrs. J. Poupart, Mr. and Mrs. H. Jolis, Mr. C. H. Curtis, Mr. A. Bedford, Mr. and Mrs. F. Ladds, Mr. A. C. Bartlett, Mr. and Mrs. W. Cuthbertson, Mr. A. J. Wood, Mr. and Mrs. W. E. Wallace, Capt. Noel Sutton and Mr. and Mrs. G. H. Cobley.

A telegram conveying wishes for a happy and profitable evening was read from Mr. George Monro, who was abroad.

In proposing the toast of "Continued Prosperity to the Gardeners' Royal Benevolent Institution," Mr. Lionel de Rothschild said that the charity was only some nine years short of its centenary. It was a charity which should be supported by everyone who loved a garden, from the highest in the land to the lowest. Their Majesties had always taken an interest in the Institution from the time when Queen Victoria was its Patroness. The object of the charity—the only one of its kind in England—was to assist by means of annuities distressed and aged gardeners and their widows. For this purpose £5,500 was needed, and the assured income was only £1,200. The Committee asked not only for that amount, but also for sufficient money to begin to assist permanently the twenty-six persons on the waiting list who were deserving of help, and whose cases had been investigated. They were all people in dire need, and he really could not understand how it was there was a waiting list. Mr. Rothschild referred to the occasions on which his father had taken the chair at Festival Dinners, and he appealed to all present to help those who, through no fault of their own, had fallen on evil times.

In replying, Mr. Leonard Sutton expressed appreciation of the fact that Mr. Lionel de Rothschild should continue the interest taken by his father and uncle in the Institution. Everyone knew how much English horticulture owed to the family of Rothschild. He referred to the growth of the charity and, with the increasing number who needed pensions, the need for more money. He suggested means by which this could be raised by local collectors and referred to the losses sustained through the deaths of Lord Lambourne, and Mr. Peter Veitch. In conclusion he congratuled Mr. Gerald Loder on his election to the Presidency of The Royal Horticultural Society.

Col. Sir John Smith Young proposed "The Visitors" in an interesting speech, in the course of which he referred with pleasure to the number of small gardens that were springing up in the poorer districts "like oases in the desert." He also referred to the adoption of flower emblems to raise funds for great national causes—Poppy Day, Daisy Day and Rose Day. Sir Jeremiah Colman, Bt., responded.

Mr. Edward Sherwood, Master of the Worshipful Company of Gardeners, and Treasurer of the Gardeners' Royal Benevolent Institution, proposed the health of "The Chairman." He emphasised the connection of the Rothschild family not only with horticulture in general, but with the Institution in particular, and indeed with all institutions which had for their object the alleviation of suffering. Mr. Lionel de Rothschild, in reply, paid tribute to the work of Mr. G. Ingram, the Secretary, and said if the collection realised all that the Committee needed, there would be sufficient thanks. He referred to the planting of ornamental trees and shrubs along the highways of this country, and to the damage that was done to them by thoughtless people, and asked all present to bring home to the public the fact that it was the duty of every citizen to protect the beauty of the English roadside; if they would do so he would be more than repaid.

The principal contributions were as follow:—Lionel de Rothschild, Esq., £100; Messrs. N. M. Rothschild and Son, £105; Messrs. Hurst and Son, £105; Messrs. Sutton and Sons, £100; Mr. H. Gordon Selfridge, £52 10s.; Sir Jeremiah Colman, £30; The Royal Horticultural Society, £52 10s.; Mr. W. Cuthbertson, £50; Mr. Chas. H. Cook, Royal Gardens, Windsor, £153 11s., including £68, the proceeds from two social evenings and fifty guineas subscription from Messrs. Waterer, Sons, and Crisp, Twyford; Messrs. Wood and Son, Ltd., £100, including £10 10s. from Sir W. Paulin; Mr. Chas. H. Curtis, £39 18s. including £21 from W. Laurence Bradbury, Esq., and £5 5s. from the proprietors of *The Gardeners' Chronicle*; Mr. W. E. Wallace, £22; Mr. R. W. Wallace, £20; Mr. R. F. Felton, £21; Mr. G. F. Johnson, £47; Mr. W. H. Honess, £20; Mr. F. J. Chittenden, £16 16s.; Mr. J. G. Weston, £16; Mr. and Mrs. G. H. Cobley, £15 15s.; Mr. H. G. Alexander, £15 15s.; Mr. Arthur Bedford, £15 15s.; Mr. A. C. Harris, £8 8s.; Mr. H. H. Thomas, £8 8s.; Mr. H. B. Piper, £8 8s., and Mr. Noel Berridge, £7 7s.

Major E. G. Monro's Covent Garden List came to £287, and included Major E. G. Monro, £25; Mr. Geo. Monro, C.B.E., £25; Mr. F. A. Secrett, £21; Messrs. T. J. Poupart, Ltd., £21; £10 10s. each from Messrs. Geo. Monro, Ltd., Messrs. E. Stevens, Ltd., Mr. Alfred Watkins, Mrs. Alfred Watkins, and Mr. J. Rochford; Mr. Raymond Rochford, £7 7s.; and £5 5s. each from Mr. A. Baker, Mr. B. J. Monro, Mr. E. Rochford, Messrs. Wills and Segar, Messrs. Thos. Rochford and Sons, Ltd., Mr. Frank Segar, and Mr. S. Segar.

Mr. John Collingridge's Covent Garden List came to £230 and included Mr. F. Ladds, £25; £10 10s. each from Mr. John Collingridge, Mr. D. Ingamells, Mr. B. G. Broome, Messrs. Elder Fyffe, Ltd., Mr. H. Miles, Mr. W. H. Robins, Mr. H. F. Hannibal, Mr. W. Wiles, and Mr. H. Larsen; Mr. John Cull, £8 8s.; Mr. R. T. Bates, £6 6s.; Mr. H. Jolis, £6 6s.; and £5 5s. each from Covent Garden Properties, Ltd., Mr. W. O. Hiehle, Mr. O. Hiehle, Mr. W. Turner, Mr. W. Maxwell, Mr. A. H. Maxwell, Mr. A. Howard, Mr. A. Dimmock, and Mr. Percy Lane, and various other amounts.

Donations of £10 10s. were given by each of the following:—Lord Treowen, Lord Aldenham, Sir Guy Granet, Col. Sir John Smith Young, Lady Waley Cohen, Sir Felix Schuster, Sir Edward Stern, Mr. James de Rothschild, Mr. Henry Hicks, Major Harcourt Webb, Mr. John Weir, Mr. J. L. Kinnell, Messrs. Bentley and Messrs. Protheroe and Morris. Contributions of £5 5s. were received from Lord Leverhulme, Lord Plymouth, Lord Dewar, Lord Leconfield Sir R. Kindersley, Lt.-Col. J. Francis, Messrs. G., W. E. Loder, C. F. Langdon, F. C. Stern, G. Prickett, J. Linford, C. Langman, Stuart Low, J. M. Bridgeford, Wm. Cutbush and Son, Lowe and Shawyer, Walter Ware and Co., Ltd., J. Firmin, P. D. Williams, A. Gollin, J. P. Taylor, Mrs. Edward Sherwood, Mrs. J. W. Campbell, Mrs. F. E. Wheatley, Horticultural Trades' Association, Mr. Hubert Greenwood, D.L., Mr. H. W. Nutting, Mr. E. T. Willis and Mr. H. S. Clogg. These, with various other amounts, made a grand total of £2,500.

WIMBLEDON GARDENERS'.

ON Wednesday, June 12, the members of the Wimbledon Gardeners' Society paid a visit to the gardens of Mr. Lionel de Rothschild at Exbury. The party, numbering forty-two, travelled by motors by way of Staines, Basingstoke and Winchester. At this ancient city a halt was made; then the party proceeded to Lyndhurst, where lunch was served. The pretty village of Beaulieu was soon entered, and a short call was made on Mr. Shotter, the village schoolmaster and an ardent horticulturist. In a little while, Exbury was reached, and the members began their inspection of the beautiful garden. Mr. Findlay showed them round the ornamental grounds and was very obliging, readily answering many questions. The grounds proved to be most attractive, and many were the expressions of approval. Presently a tour was made through the glasshouses, under the leadership of the inside foreman. The houses—full of rare and interesting plants—were magnificent, embodying all the latest improvements in horticultural building. After this the visitors were taken over by the foreman of the kitchen gardens who conducted them around his special department.

Just before the conclusion of the visit, Mr. A. Bedford, the head gardener, returned from London, and was greeted and thanked by Mr. Hosking, the Chairman of the Society. The return journey was made via The Hog's Back, Guildford, Cobham and Esher.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AT the meeting of this Society held early in June, the members of Committee present were:—Messrs. J. B. Adamson (in the chair), A. Burns, A. Coningsby, D. A. Cowan, A. Keeling and H. Arthur (Secretary). Mr. T. A. Greenfield was invited to sit with the Committee.

No awards to individual plants were made.

GROUPS.

Mrs. BRUCE and Miss WRIGLEY (gr. Mr. A. Burns), Bury, staged a group to which a Large Silver-gilt Medal was awarded. It consisted of Miltonias in great variety, together with Odontoglossum Phoebus, O. Eve, O. Lutetia, O. eximium and O. harvengtense, Odontioda chelsiensis and others.

J. B. ADAMSON, Esq. (gr. Mr. J. Howes), Blackpool, was also awarded a Large Silver-gilt Medal for a group which included Odontoglossum crispum var. Coronation, O. Baron Renfrew and O. Grand Duke Nicholas; Odontioda Cereus and O. Coronation; Miltonia Hyeana var. Butterfly, M. H. var. Distinction, and others; Cattleya Mossiae, Masdevallia Bocking hybrid, and Oncidium flexuosum and O. varicosum var. Rogersii.

Messrs. CHARLESWORTH AND CO., were awarded a Large Silver Medal for a small group which embraced such choice Orchids as Odontoglossum Ascania, O. Figaro, O. Toreador, O. Celeus, O. Purple Gem and O. Gardenia; Miltonia Lena, M. Lucia, M. Elea, M. William Pitt and others.

Captain W. HORRIDGE (gr. Mr. A. Coningsby), Bury, staged Miltonia Hyeana, M. Bleuana var. Reine Elizabeth and others; while Messrs. KEELING AND SONS showed Odontoglossum Amersham, O. promerens var. xanthotes, and O. Matador; Miltonia Bleuana var. albens; Dendrobium Renown and Masdevallia Peristeria var. muscosa.

Mr. JOHN EVANS, Colwyn Bay, exhibited Cypripedium microchilum, Coelogyne Mooreana, and various Odontoglossum seedlings.

AT the Annual General Meeting, which followed the Committee meeting, Captain W. Horridge presided. The report and balance sheet for the session were adopted.

Henry Astley Bell, Esq., was re-appointed President; J. B. Adamson, Esq., Hon Treasurer, and Mr. H. Arthur, Secretary. The Executive and Awards Committees were also re-appointed.

The prizes were presented to the successful exhibitors as follows:—to J. B. ADAMSON, Esq. (gr. Mr. J. Howes), the Alexander Trophy, Charlesworth Trophy, Cowan's Trophy, Cypher Trophy, Evans Trophy, Sander's Trophy, and the Horridge Challenge Cup, the last named for the third year in succession.

The Royal Botanic Society of Manchester and Northern Counties' Silver Gilt Medal to Mr. A. Burns; and the Silver Medal to Mr. J. Howes. Mrs. Smith's prizes to gardeners: First, Mr. J. HOWES; second, Mr. A. BURNS, and third, Mr. B. COLLINS.

The Secretary regrets to place on record the deaths of Messrs. J. J. Bolton, S. Gratrix and J. Thrower, who were long connected with the Society.

NATIONAL SWEET PEA.

JULY 2 AND 3.—The Exhibition held by this Society on these dates was its twenty-ninth, and the first one it has held in the Royal Horticultural Society's new hall, which, despite its magnitude, was well filled with exhibits, and presented a very delightful picture. That this was due largely to the manner in which the exhibits were arranged cannot be questioned, and much praise is due to those responsible for the arrangement and general management of the show, and especially to the Society's able secretary, Mr. A. C. Bartlett.

Competition in the majority of the classes was keen, and, despite the trying weather conditions with which Sweet Pea growers have had to contend, the general quality of the blooms displayed was very high. Although trade exhibits were not numerous, they were very imposing, and the arranging of the various large competitive groups with them was a happy thought, and added greatly to the general effect. The Exhibition may well be described as a complete success.

On the first day of the show the President of the National Sweet Pea Society, Harold Beale, Esq., entertained the judges and chief exhibitors, and a large number of visitors, including several Sweet Pea enthusiasts from the United States, to a very enjoyable luncheon.

COMPETITIVE CLASSES.

These were very extensive, embracing in all seventy classes, and including a large number of special trophy competitions, which, in general, were keenly contested.

In Division I, open to all members, the *Daily Mail* Cup, offered for the best twelve vases of named varieties of Sweet Peas in commerce, was awarded to Major C. B. KRABBE (gr. Mr. A. W. Power), Calcot Grange, Reading, for a very fine set of really good blooms, his varieties being Blue Bird, Grenadier, Wild Rose, Pinkie, Constance Hinton, Magnet, Sunkist, Hero, Mammoth, Powerscourt, and Mrs. A. Searles. Mr. H. CHING, Elmside, Torquay, was a close second, showing Pink Delight, Powerscourt, Charming, Britannia and Bluebell in splendid condition, while Mrs. URQUHART (gr. Mr. W. Buckle), Brasted Place, Kent, was third.

In the competition for the E. W. King Cup, Mr. H. W. LININGTON, Atherfield Farm, Chale, Ventnor, Isle of Wight, was first, his twelve vases including grand blooms, in the pink of condition, of Mrs. A. Searles, Vectis, pure white; Venus, pink and cream; Mammoth, Sunkist, and Charming. Outstanding sorts in the second prize exhibit by Miss RUSSELL, Canterbury, were Model, Nina, Gold Crest, Powerscourt and Pinkie.

Miss Russell was first in Class III, for six varieties of Sweet Peas that have not been in commerce for more than one year, and so secured the Burpee Cup, her varieties being Ruffled Rose, Winnie Morse, Vectis, Ambassador, Flamingo and Reflection, and she was also first in the colour scheme class, with very attractive blooms in several delicate shades; second, Mrs. HENRY WILLIAMSON (gr. Mr. W. Langsdon), Bramhope, Canterbury, and third, Mr. W. HUFFEY, Yardley Park Road, Tonbridge.

Messrs. E. W. KING AND CO., LTD., were first in Class 5, for three vases of seedling Sweet Peas, not yet in commerce, with Souvenir, a grand salmon-cerise; Sonny Boy, mahogany-red, and Big Ben, of good form and pink and cream in colour. Mr. J. STEVENSON was second in this important class, showing perfect blooms of Purity, white; Scintillant, bright rose, and Beauty, flesh-pink. For one seedling Sweet Pea, the Southfield Nurseries were first with Michael, pale salmon; Messrs. E. W. King and Co. being second with Big Ben. The latter firm was first in the raisers' class, for six vases of Sweet Peas, distinct, raised by the exhibitor, with Leslie Rundle, Olympia, Pimpernel, Vectis, Jack Hobbs and Tally Ho. Mr. J. Stevenson was second with Purity, Scintillant, Charm, Treasure, Beauty and Lustre.

Competition in the single bunch classes in this division was very keen, and a high standard of quality was maintained throughout. Mr. R. G. Taylor, 25, Highgrove Street, Reading, was first for one vase of blue Sweet Peas, with Bluebell, of grand quality; second, Miss Russell, with Tom Webster; third, Mr. J. Stevenson, with Bluebell. For one vase of cerise Sweet Peas, Mr. H. W. Linington was first with Glorious, and he also secured the first prize for cream-pink Sweet Peas; F. W. Franks, Esq. (gr. Mr. W. Humphrey), Loampits, Tonbridge, was second in this class with Miss California; third, Mr. W. Huffey, with Picture. Miss Russell led for one vase of cream, buff or ivory-coloured sorts, followed by Mr. H. W. Linington, both exhibitors showing grand blooms of Ivory Picture, and these two exhibitors were also first and second respectively for white or cream ground, flushed sorts, the former showing Mrs. Horace Wright, and the latter, Del Monte.

For one vase of pink Sweet Peas, not cream ground, Mr. R. G. Taylor was first with Pinkie, in splendid condition, Mr. H. W. Linington being placed second, and Mr. W. Huffey, third, while Mr. R. G. Taylor also led for a vase of crimson or scarlet sorts, with Royal Scot; second, Miss Russell, with Flaming June; and third, Mr. W. Huffey, with Defiance.

The best vase of lavender or mauve Sweet Peas was shown by Mr. W. Huffey, while Miss Russell secured the premier award for maroon Sweet Peas, and also for one vase of orange or orange-scarlet Sweet Peas, with lovely blooms of Royal Sovereign. Mr. W. Huffey led for picotee-edged Sweet Peas in this section, showing grand specimens of Youth; second, Miss Russell, with Sunkist, the latter exhibitor securing the premier awards in both the white, and the "any other colour" classes, with Model and Lilac Queen, respectively.

The premier competitions in Division 2, open to the trade only, were for the Bath Challenge Cup and the Eastbourne Challenge Cup. The former was for the best exhibit of Sweet Peas grown out-of-doors, the maximum group space being 12 ft. by 4 ft. 6 ins., and this trophy was awarded to Messrs. E. W. King and Co., Ltd., who had a grand display of magnificent blooms. There were huge sheaves of Pimpernel, Tally Ho and Flamingo, and lovely baskets of Jack Hobbs, Cheerio, Big Ben, Magnet, Idyl, Sonny Boy, and others, all very tastefully arranged. Mr. J. Stevenson was responsible for an attractive group in this competition, showing grand blooms of such choice sorts as Treasure, Powerscourt, Beauty, Ascot and Charm.

The Eastbourne Challenge Cup, for the best trade exhibit with a maximum space of 15 feet by 4 feet 6 inches, was awarded to Messrs. Dobbie and Co., Ltd., who staged a very striking display, in the form of huge sheaves of Reflection, Gleneagles, Flamingo and Royal Sovereign, in the background, with dainty vases of such grand sorts as Jack Hobbs, Mrs. A. Searles, Picture, Magnet, Charm, Dainty Maid and Idyl, all in splendid condition. Messrs. Sutton and Sons also entered a very striking group in this competition, their massive pillars of Magnet, Matchless and Idyl being very imposing, while they had lovely vases of many other choice sorts.

Messrs. E. W. King and Co., Ltd., were the winners of the Monro Challenge Trophy, for twelve vases of Sweet Peas, in not fewer than six varieties, and in their grand set they included perfect examples of Olympia, Vectis, Mrs. J. B. Hobbs and Gladys; second, Mr. J. Stevenson, with Bullion, Venus, Purity, Beauty and Wild Rose, very fine; and third, Mr. H. J. Damerum.

Class 26 was the most important one in Division 3, open to all amateurs, as the first prize in this carried with it the Bournemouth Challenge Cup. A display of Sweet Peas on a 5 feet run of staging was required, and the display set up by Samuel Wallrock, Esq. (gr. Mr. W. Holloway). The Manor House, Stanmore, was deservedly awarded the trophy, for the blooms were in splendid condition and very tastefully arranged.

In the class for the Sutton Cup, F. W. Franks, Esq., was deservedly placed first, for he showed blooms of outstanding quality, his varieties being Model, Venus, Powerscourt, Gleneagles, What Joy, Glorious, Youth, Picture, Magnet, Purple Monarch and Royal Mauve; this exhibit also secured for him *The Gardeners' Chronicle* Medal. Mrs. J. T. Wigan (gr. Mr. F. Cotterell), Danbury Park, Chelmsford, was a close second, her best blooms being of Sunkist, Flamingo, Avalanche and Youth, and Samuel Wallrock, Esq., was placed third.

There was a large number of entries in the Cory Cup class, for six vases of Sweet Peas, Mrs. A. Cole (gr. Mr. L. W. Barker), Sheffield Place, Basingstoke, being awarded the trophy for a grand set, embracing Mammoth, Powerscourt, Constance Hinton, Blue Bird and Youth; second, Mrs. W. G. Thorpe (gr. Mr. W. Birches), Hucclecote, Gloucester; third, Mr. H. Williamson.

For nine vases of British-raised Sweet Peas, F. W. Franks, Esq., was placed first with a very choice selection, in which Model, Magnet, Venus and Mammoth were outstanding; the second prize was awarded to Mrs. C. Pearson (gr. Mr. C. Hodgson), Acton Place, Suffolk, while in the next class, Mrs. W. G. Thorpe was first, Mrs. H. Williamson second, and Mrs. C. Pearson third.

In the Western Counties and South Wales class (these district classes required six vases of Sweet Peas), Mrs. W. J. Thorpe secured the first prize, her best vases being of Elegance, Mammoth and Mrs. A. Hitchcock; Mrs. F. Churcher, Newton Abbot, was second. Mrs. Duveen (gr. Mr. J. Howard), Broadway, Limpsfield, Surrey, was first in the Southern Class, with fine blooms of Pinkie, Model, Youth, Purple Monarch, Mrs. A. Searles, and Powerscourt, while in the class devoted to the Midland Counties, Mr. H. C. Dawes, Mundesley, was first. The leading exhibitor from Ireland was Lord Ardee (gr. Mr. W. Barrett), Kilruddery Castle, Bray, Co. Wicklow. He had a grand set of blooms, which had withstood the journey to London exceptionally well, the varieties displayed being Charming, Royal Mauve, Sweet Seventeen, Constance Hinton, Gladys and Mrs. A. Searles; a very creditable exhibit.

Mr. H. Ching, Torquay, was first for six vases of Sweet Peas, and F. W. Franks, Esq. led for one vase of three distinct colours, while in the single vase, distinct colour, classes, the first prize winners were Samuel Wallrock, Esq., Mr. H. Ching, F. W. Franks, Esq., and Mrs. A. Cole, all of whom exhibited blooms of very high quality.

In the section for members who grow not more than 500 exhibition plants, Mrs. Zachner (gr. Mr. A. W. Richards), Oak Hill Lodge, Sevenoaks, was the most successful exhibitor, while among the members with not more than 300 plants, the leading prize-winners were Mr. B. A. Hull, Kelvedon, Essex, for twelve vases, three vases, and one vase of mixed, with some very good blooms; Mr. F. Burfoot, for six vases, which were of What Joy, Charming, Magnet, Venus, Hebe and Model; Mr. H. Monk, and Mr. C. R. Jeggs.

In the division for novices, who were very numerous, Mrs. Duveen secured the premier award for six vases of Sweet Peas, Mr. J. W. Hatcher being placed second, and Mr. C. Reid, third, while Mrs. Duveen was also first for three vases, one vase, and one vase of mixed colours.

There were several good sets of Sweet Peas in the *Amateur Gardening* Cup class, for nine vases of Sweet Peas, distinct, Mr. W. Huffey being awarded the trophy, with Mr. F. J. Rogers and Mrs. C. Pearson, second and third, respectively. The Hamilton Cup, for twelve vases, distinct, amateurs only, was awarded to Mr. F. J. Rogers, while in the amateur classes for nine vases and six vases, Mrs. H. E. Dunhill and Mr. E. Smith secured the premier awards. Mr. C. Reid was placed first in the popular class for six vases with nine sprays in each vase.

The Reading and District Gardeners' Mutual Improvement Association secured the special Challenge Shield in the competition of affiliated Societies, with a grand set of twelve vases, the best blooms being of Sunkist, Glorious, Pinkie and Constance Hinton.

The various classes for decorations, open to lady members only, as usual proved an attractive feature of the exhibition, many very charming arrangements being displayed.

Naturally, the class requiring the decoration of a dinner table with Sweet Peas attracted the largest number of competitors, and the exhibit by Mrs. H. A. King, 14, Bunyan Road, Kempston, was deservedly awarded the first prize, for she used grand blooms of Powerscourt and Royal Sovereign in association with Maidenhair Fern to produce a very charming and delicate effect. Miss Gladys Burt was awarded the second prize, and Mrs. Moore the third.

Mrs. H. A. King also exhibited the most attractive vase of Sweet Peas, while the best basket, and that an exceedingly attractive one, was also arranged by Mrs. King, the second and third prizes being awarded to Miss Mavis Burt and Miss Gladys Burt, respectively.

NON-COMPETITIVE.

Although these were not numerous, they were of grand appearance, and added greatly to the general effect of the exhibition. At the far end of the hall, and completely filling it, was a magnificent display by Messrs. Sutton and Sons, in the form of a huge bank of large bouquets of lovely blooms, set at varying heights, and well set off with sprays of Asparagus and Maidenhair Fern, with graceful Palms in the background. Flamingo and Mammoth caught the eye at once by reason of their vivid colouring, while Blue Bird, and the pure white Avalanche; Gold Crest, Colorado, a good salmon; Majestic Cream, Powerscourt, Mrs. Horace Wright, Prince of Orange, Magnet, Valetto and Miss California, with many other charming sorts of delicate colouring, combined to complete a picture both charming and striking in its arrangement (Large Gold Medal).

Completely filling one-third of the wall on the left side was an enormous bank of Sweet Peas as set up by Messrs. Dobbie and Co., Ltd., in the form of huge sheaves of grand blooms of many choice sorts, with large bowls of flowers in the foreground. Gold Crest, Royal Sovereign and Powerscourt were shown in perfect condition, as also were Olympia, Carnival, Daffodil Improved, a really good cream; Idyl, Gleneagles, mauve-lavender; Youth, white, shaded pink; Clarion, mauve, with a plum sheen, very striking, and Mrs. A. Searles. Other good sorts in this grand exhibit were Prince of Orange, Constance Hinton, Model, Charm and Reflection (Gold Medal).

The Southfields Nurseries staged an attractive group of grand bloom,s their most prominent varieties being White Enchantress, Michel, Austin Frederick, and Youth (Silver Medal), while charming florists displays were arranged by Messrs. Robert' Green, Ltd. (Silver-gilt Medal).

Novelty Trials.

The N. S. P. S. Floral Committee attended at Birdbrook on Tuesday, June 25 to inspect the Society's Novelty Trials. All the members were present:— Messrs. D. Allan, G. F. Burt, E. H. Christy, C. H. Curtis, F. J. Rogers, F. L. Randall, C. H. Rundle, J. Stevenson and Fred J. Wheler, with Mr. Robt. Bolton, the Trials Superintendent and Mr. A. C. Bartlett, Secretary. Mr. C. H. Curtis was appointed Chairman.

Several hours were spent among the 111 trials and every entry was checked for "trueness" while certain varieties were chosen for further consideration in the stronger light of the following morning. About thirty varieties were thus selected, but on the following day very few of these were voted upon.

In the final result, Flaming June (raised by Messrs. Ireland and Hitchcock, and now the property of Messrs. Jas. Carter and Co.), was found to be true and as it was reserved for the Gold Medal in 1928 the high award was now confirmed. No. 14, a clear, cool, light salmon variety, upstanding and non-burning, was unanimously awarded a First-Class Certificate; this, as yet unnamed, was raised by Messrs. Robert Bolton and Son; it was reserved for the Gold Medal of 1930. No. 40, cream ground flushed with rosy-pink (Messrs. E. W. King and Co.), and No. 104, deep mahogany-red, from the same firm, each received an Award of Merit. These were the only awards, therefore the Floral Committee could not be accused of excessive liberality.

Mr. and Mrs. R. Bolton entertained the Floral Committee to dinner on Tuesday, and on Wednesday, when a large number of members came down to see the trials, they royally entertained the party to luncheon and tea. The President, Mr. Harold Beale, and Mr. Curtis expressed the thanks of the Society and of the members present for the creditable manner in which Mr. R. Bolton and his son, Mr. Tom Bolton, had conducted the trials, and for the charming hospitality offered to all by Mr. and Mrs. Bolton. Both the Trials and the Outing were a great success.

FRENCH NATIONAL ACCLIMATISATION.

On June 4 was held the annual luncheon of the French National Acclimatisation Society, in the restaurant of the Gare de Lyon, in Paris, under the Presidency of M. Pierre Benoit, the well-known French writer.

These luncheons, at which are wont to gather a number of well-known colonial and scientific men are famous for the number and variety of the foreign dishes provided, prepared with all the mastery of his art possessed by that excellent chef, M. Saint-Etienne.

It may be of interest to mention those among the dishes served which are of a vegetable nature:—*Saucisson Chinois* is composed of pork with Soya Bean cheese (Soya hispida), flavoured with alcoholic essence of Roses. *Moqueca à la Bahiana* is ragout of fish seasoned with Palm oil (Elaeis guineensis). *Went Ethiopien* consists of beef served with a sauce composed of various condiments including Berberi (Capsicum annuum), white Onions, Abech (Trigonella foenum-graecum), Pasobela, a small aromatic plant; white and black Azmud (Nigella sativa); Coriander (Coriandrum sativum); Ginger (Zingiber officinalis); Toségu, a creeping odoriferous plant; Gomenzer, a kind of Mustard; Cloves (Caryophyllus aromaticus), etc., etc. This dish was particularly appreciated. Wild mutton served with sweet Potatos (Batatas edulis), and, by way of Spinach, Torrent Grass (Podostemum minutifolium), an aquatic plant with long, ribbon-like leaves which is found in the streams of Madagascar. *Viandes intra-saucées* consist of meat prepared in the special way devised by Dr. Gaudichaud. A special mixture of oil, garlic or Shallot, Onion, Tarragon and spices or aromatic flavourings is injected into the veins or arteries of the meat about twelve hours before cooking, which renders it particularly tasty. (See *Revue d'Histoire Naturelle Appliquée*, Paris, 1927 and 1928).

Among other more or less unusual dishes of vegetable origin which figured at previous luncheons we may mention *gauffrettes à la Cola* (Cola acuminata), Spinach of Amaranth, Goosefoot (Chenopodium amaranticolor), Siamese Pumpkin (Cucurbita ficifolia) as Cauliflower; a *Gofio* preparation with roasted Maize; Salicorne (Salicorne sp.) as Haricots Verts; Bolets de Russie; Maté (Ilex paraguayensis); Haricots du Chili; stewed Papayas (Carica Papaya); Guava jelly (Psidium), etc.

In 1911, a whole series of dishes were prepared of Soya (Soya hispida), and in 1919 the luncheon was entirely dedicated to Rice. *A. M.*

Obituary.

Henry Ballantine, V.M.H.— This fine old gardener who had reached the advanced age of ninety-five years, passed to his rest on June 27. Mr. Ballantine was born in 1833 and began his gardening career in Scotland, but while still a young man he was appointed gardener and bailiff to the late Baron Schröder, at The Dell, Englefield Green, Surrey. Here he remained for nearly half-a-century, and on his retirement in 1911 he continued to live in Egham, where he died. For a period of twenty-five years Mr. Ballantine was a member of the Royal Horticultural Society's Orchid Committee, and in 1907 he was awarded the Victoria Medal of Honour in Horticulture. As a clever gardener and skilful cultivator of Orchids Mr. Ballantine won a great reputation and the high esteem of his employer, who, on his death, left his old servant a legacy of £1,000. In our issue of October 6, 1917, we published the portraits of Mr. H. Ballantine, Mr. T. Robinson, gardener at Cooper's Hall; Mr. J. Jemmett, of Milton Park; and Mr. A Sinclair, formerly of Hunsden House Gardens, Ware. These veterans were photographed in a group at Mr. Ballantine's home, Westwood, Egham Hill, and the combined ages of the four come to 336 years.

Felix Sohie.—We very greatly regret to learn of the death at Brussels, on June 22, at the advanced age of eighty-eight, of M. Félix Sohie, the eldest and last of the valiant little band of three brothers who established, in 1866, the Grape-growing industry at Hoeylaert, Belgium, which has now attained to such immense dimensions. Although he had lived in retirement for some time, M. Sohie was still looked upon as a "grand old man" of Belgium horticulture, and was greatly esteemed and admired not only in Hoeylaert, his native village, but in the world of horticulture generally. He was an officer of the Order of Leopold, and had also been awarded the Civic Cross of the First Class. The funeral took place at Hoeylaert on Wednesday, June 26, and was attended by a large and distinguished company of friends and relatives; his son, M. Ernest Sohie, was the chief mourner. M. H. van Orshoven represented the Minister of Agriculture, and the discourse was pronounced by M. Honnorez, the Burgomaster, after which several other friends also spoke. Hoeylaert is not likely soon to forget the founder of its present prosperity, and the immense concourse of people at the graveside, and the pile of floral tributes under which the coffin was literally buried, testified to the gratitude and esteem in which he was, and ever will be, held. Some particulars of the industry established by the Sohie Brothers will be found in our issue of May 25, 1929, p. 373.

George Todd.—For the second time in a few weeks Messrs. Daniels Bros., Ltd., Norwich, have to record the sudden loss by death of a valued employee. Mr. George Todd, whose father was a highly respected gardener in the Midlands, came to the firm twenty-three years ago, and during the past few years had been in charge of the work in connection with the staging of exhibits, for which he had a special aptitude. The groups he staged at Southport, Shrewsbury and many of the provincial Shows, were examples of his high skill. He will be greatly missed by his friends in the Trade, by whom he was held in high regard on account of his quiet, unassuming, but very charming nature. Mr. Todd was also, up to the time of his death, the Secretary of the East Anglian Horticultural Club, the premier Gardeners' Club of East Anglia. He was called away at the early age of fifty years, leaving a wife and two children to whom we are sure the sympathy of a very large number of friends will be extended.

TRADE NOTE.

We learn that Messrs. Dennis Bros., Ltd., of Guildford, Surrey, will be exhibiting their well-known motor lawn mowers, in association with motor vans, fire engines, etc., at the Royal Show, Harrogate, on July 9 to 13.

ANSWERS TO CORRESPONDENTS.

Gardener's Notice on a Sunday.—*W. A. S.* If due notice has been given in accordance with the terms of the employment, the fact of the notice being given on a Sunday does not affect its validity.

Gooseberry Fruits and Foliage Diseased.—*J. C.* The Gooseberry fruits and foliage you sent us were infected with Gooseberry rust, due to Puccinia Pringsheimiana. Pick off all infected fruits and leaves and burn them, and spray the bushes with potassium sulphide (liver of sulphur) and soap wash. Various Sedges provide the alternate host of the fungus, so that these plants should be kept down where practicable in the neighbourhood of Gooseberry plantations.

Names of Plants.—*W. A. D.* Bilbergia nutans.—*A. R.* 1, Sedum Acre; 2, Viburnum Opulus var. sterile (Snowball Tree).—*H. T. M.* 1, Gypsophila prostrata var. rosea; 2, Lithospermum prostratum; 3, Linaria origanifolia; 4, Achillea umbellata; 5, Aethionema pulchellum; 6, Veronica prostrata; 7, Campanula garganica; 8, Arenaria montana; 9, Hemerocallis aurantiaca.—G. 1, Cotoneaster buxifolia; 2, Clematis (one of the numerous garden hybrids); 3, Alyssum argenteum; 4, Philadelphus coronarius; 5, Allium Moly; 6, Arctotis, probably A. acaulis, but cannot name without complete material; 7, Dianthus, material too scrappy for identification; 8, Lathyrus rotundifolius (?); 9, Spiraea sp., material too scrappy for identification; 10, Inula glandulosa; 11, Leptospermum scoparium; 12, Cotyledon secunda var. glauca; 13, Jasminum revolutum; 14, Photinia villosa.

Number of Fruits on Egg Plants.—*C.* As your Egg Plants are now in ten-inch pots and healthy, a well-grown plant of Long Purple variety should carry six or eight fruits, but to obtain fine, well developed fruits, the number should be reduced on each plant in proportion to its strength. New York Purple, a much larger-fruited variety, seldom matures more than two fruits. The plants will not make much surplus growth if the fruits set well. It is, however, a good plan to pinch out the points of the shoots towards the end of the summer, and the plants should be fed well after the fruits have set to bring out their best qualities.

Onions Infested with Eelworm.—*C. S.* and *C.* The Onion plants were heavily infested with the stem eelworm, Tylenchus dipsaci, while a few of the plants contained larvae of the Onion fly. The control of eelworms in the field is exceedingly difficult. Rotation of crops is essential, and neither Onions nor Narcissi should be grown on infected land for at least five years. Two or three applications of nitrate of soda, applied at intervals of ten to fourteen days, might enable some of the plants to grow away from the attack. Plants killed by this pest should not be allowed to rot in the ground or on the rubbish heap, but should be burnt.

Vine Foliage Unhealthy.—*C. W.* The vine foliage is free from attack by pathogenic organisms. The leaf exhibits a chlorotic condition, which is probably due to overshadowing by other leaves so that light is cut off. A somewhat similar condition results from an excess of lime in the borders. The amount of water draining from the pots on the shelf is probably insufficient to have any deleterious effect on the vines.

Yew and Box Hedges in Poor Soil over Chalk.—*W. G. B.* That both Yew and Box will flourish on poor, chalky soil is amply demonstrated by the way they both grow on the chalk hills of Surrey and elsewhere, therefore we see no reason why your scheme should not meet with success. If the soil can be enriched somewhat, so much the better, and next season mulching will probably have to be done to assist root development.

Communications Received.—A. W. D.—J. K.—N. L. A.—W. H. D.—A. B.—R. G.—A. W. B.—M. C.—J. F.—A. M.—A. W.—A. H.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the *Official Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

17,372.—Chase, L. H.—Horticultural frames, etc. June 6.
17,328.—Frost, G. C. H.—Potato-planter. June 6.
17,387.—Hilton, W. P.—Ground supports for flowers, plants, etc. June 6.
17,105.—I. G. Farbenindustrie Akt.-Ges.—Manufacture of granular mixed fertilisers. June 4.
17,378 —Muller, M.—Seed drills. June 6.

Specifications Published.

312,776.—Edkins, W. J.—Devices for securing growing plants, wires, cables, and the like to walls and other supports.
312,784.—Henderson, G., and Henderson, W. M.—Machines for making mole drains.
312,800.—Foot, E. H. W.—Rotary tilling-machines.
294,183.—Lepine, P.—Apparatus for electric farming which may serve for hail protection.
312,386.—McLaren, H.—Cultivators and other soil-working implements.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

Abstract Published.

One of the latest products of the famous British firm, the Imperial Chemical Industries, is a chemical manure patented under No. 309,299. A fertiliser consisting of ammonium nitrate and calcium carbonate, obtained as a bye-product in the preparation of ammonium sulphate from ammonium carbonate and calcium sulphate, with or without other ingredients, as described in Specification 305,760, is, according to the present invention obtained by spraying or atomizing a hot concentrated solution of ammonium nitrate mixed with the calcium carbonate, preferably down a tower, in contact with a stream of air. Granules of the mixed salt collect at the base of the tower and are dried and sifted to separate fines. The preferred method of spraying is to disintegrate an annular stream of the slurry by means of jets of heated air.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the *Official Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

COHUGILPA.

502,723.—Chemical substances used for agricultural and horticultural purposes.—Thomas Arthur Coe, 7, Whiting Street, Bury St. Edmunds, June 19.

VEG-U-MUS.

502,376.—Fertilisers.—The Lord Mayor, Aldermen and Citizens of The Corporation of the City of Birmingham, Salvage Department, Montague Street Depot, Montague Street, Birmingham. June 19.

ZOOLEOL.

502,407.—Chemical substances used for agricultural and horticultural purposes.—Pierre Zizine, 24, Rue de Fecamp, Paris, France. June 19.

GARDENIA.

501,998.—Garden chairs and garden tables made of ordinary metal.—Scoffin and Willmott, Limited, Ironcrete Works, Abbey Road, Stratford, London, E.15. June 19.

MARKETS.

COVENT GARDEN, Tuesday, July 2, 1929.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	8 0—9 0
Araucarias, per doz. ...	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's ...	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Crassulas, per doz. ...	24 0–27 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0
Fuchsias, per doz. ...	12 0–18 0
Heliotropes, per doz. ...	15 0–18 0
Hydrangeas, white, per doz.	24 0–30 0
—pink and blue, per doz. ...	24 0–36 0

	s. d. s. d.
Lilium longiflorum, per doz.	18 0–24 0
Marguerites, white, per doz. ...	16 0–21 0
Nephrolepis, in variety ...	12 0–18 0
—32's ...	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's ...	15 0–18 0
Pelargoniums, per doz. ...	9 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Rhodanthe, pink and white ...	6 0—9 0
Roses, Polyantha, per doz. ...	15 0–18 0
Verbenas, pink and scarlet, per doz....	9 0–15 0
Viscar as ...	12 0–15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	5 0—6 0
Asparagus plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	1 6—2 6
—short „	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 6—2 6
—short „ ...	1 0—1 3
Carnations, per doz. blooms	1 6—4 0
Clarkias, per doz. bun. ...	4 0—5 0
Coreopsis, per doz. bun. ...	2 6—3 0
Cornflowers, blue, per doz. bun.	1 0—1 6
—pink, per doz. bun. ...	1 0—1 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun. ...	2 0—3 0
Delphinium, blue, per doz. spikes	2 0—4 0
Ferns, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	6 0—9 0
Gaillardia, per doz. bun. ...	4 0—5 0
Gladiolus, Blushing Bride, per doz. bun. ...	9 0–12 0
—The Bride, per doz. bun. ...	9 0–12 0
—Peach Blossom, per doz. bun.	9 0–12 0
—Scarlet, per doz. spikes ...	3 6—4 0
—primulinus, per doz. spikes ...	2 0—3 0
—large flowered, per doz. spikes	3 0—4 0
Gypsophila elegans, white, per doz. bun.	3 0—4 0
Heather, white, per doz. bun.	18 0–24 0
Iceland Poppies, per doz. bun.	2 6—3 6
Iris, Spanish, blue, per doz. blooms	0 9—1 0
— — white, per doz. blooms	0 9—1 0
— — yellow, per doz. blooms	1 0—1 6
— — mauve ...	0 9—1 0
Larkspur, mauve, per doz. spikes	2 6—3 6

	s. d. s. d.
Lilium longiflorum, long, per bun. ...	2 0—2 6
— — short, per doz. blooms	1 6—2 0
—speciosum album, long, per doz. ...	4 6—6 0
— — — short, per doz. ...	2 6—3 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0
Marigolds, per doz. bun. ...	4 0—6 0
Myrtle, green, per doz. bun.	1 6—2 6
Nigella, blue, per doz. bun.	3 0—5 0
Orchids, per doz.	
—Cattleyas ...	18 0–30 0
Paeonies, red and pink, 6's, per doz. bun.	12 0–15 0
—white, per doz. bun.... ...	9 0–12 0
Roses, per doz. blooms—	
—Columbia ...	3 0—4 0
—Richmond ...	2 6—3 6
—Yellow ...	2 0—3 0
—Molly Crawford	2 0—2 6
—Butterfly ...	2 0—3 6
Saponaria, white and pink, per doz. bun. ...	3 6—4 0
Scabiosa caucasica, per doz. bun. ...	5 0—6 0
Smilax, per doz. trails ...	4 0—5 0
Statice, mauve, per doz. bun.	9 0–15 0
—Suworowii, per doz. bun.	6 0–12 0
Stock, double white, per doz. bun.... ...	4 0–12 0
—double pink, per doz. bun.	9 0–12 0
—mauve, per doz. bun. ...	9 0–12 0
Sweet Peas, various, per doz. bun.... ...	6 0–18 0
Sultans, white, per doz. bun.	4 0—6 0
—mauve, per doz. bun. ...	4 0—6 0
—yellow, per doz. bun. ...	6 0—8 0

Remarks.—Supplies generally throughout this department have been on the increase and, with the exception of Lilium longiflorum, prices have been on the down grade. Carnations have been sufficient to meet present requirements, although prices have been from 1s. to 4s. per dozen, and best grade blooms have been cleared before the market closed; similar conditions exist with Roses, but owing to colder conditions supplies were somewhat shorter this morning; good red and yellow blooms were soon cleared. Spanish Irises will probably finish this week. Arrivals include Lilium speciosum var. album, a few white Asters from France, Clarkias, Godetias, and white and pink Saponaria. All other subjects are similar to last week's quotations, and business generally has not been so brisk.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—New Zealand—	
—Cox's ...	22 0–27 6
—Delicious ...	18 0–20 0
—Sturmer ...	17 0–20 0
—Dunn's ...	17 0–18 0
—Australian—	
—Delicious ...	18 0–20 0
—Granny Smith	20 0–24 0
—Cleos ...	18 0–20 0
—Dunn's ...	14 0–18 0
—Tasmanian—	
—Granny Smith	24 0–25 0
—Sturmer ...	16 0–18 0
Bananas, per bun.... ...	17 0–27 6
Currants, English, Black, per lb.	0 7—0 8
—Red	0 10–1 0
—French, Black, per boat ...	6 0—8 0
Gooseberries, English, per ½ sieve ...	2 6—4 0
—Dutch, ½-bag	2 0—3 0
Grapes, English—	
—Muscat ...	7 0–15 0
—Hambro, per lb.	2 6—5 0
Cherries, English, Early Rivers, per ½-sieve ...	10 0–15 0
—Bigarreau, per ½-sieve ...	6 0–10 0
—Eltons ...	10 0–14 0
—Governor Woods ...	8 0–10 0
—Dutch ...	6 0–10 0

	s. d. s. d.
Apricots—	
—Spanish ...	4 0—7 0
Figs, per doz....	6 0–24 0
Pears—	
—New Zealand—	
—Winter Nelis, per tray ...	5 0—7 0
—Australian—	
—Winter Nelis	6 6—8 6
Plums—	
—Algeria ...	6 0—9 0
—Italian ...	5 0—8 0
—Spanish ...	6 0—8 0
Grape Fruits—	
—Cape, per case	25 0–30 0
—Jamaica ...	35 0–40 0
Lemons, per case—	
—Messina ...	12 0–22 6
—Naples ...	22 0–40 0
Melons, each ...	2 0—8 0
Nectarines, per doz.	8 0–24 0
Oranges—	
—Denia ...	26 0–30 0
—Mercia ...	26 0–40 0
—Cape Navels	18 0–26 0
Peaches, per dozen ...	6 0–24 0
Pineapples, case	21 0–36 0
Strawberries, Southampton, per 3 lb. chip	2 6—3 0
— per 2 lb. chip	1 6—2 6

Remarks.—Trade in the fruit market is moderately brisk and even Strawberries have not materially affected other sections as they usually do. Peaches, Nectarines, Figs, Melons and Grapes are selling with some freedom, although prices are a shade easier than last week. Strawberries, chiefly from the Southampton district, have fluctuated in both demand and supply, and prices have been variable. Some good English Cherries are now arriving, but quantities are not large. Gooseberries are a weak market and only first-grade fruits are saleable at fair prices. Plums and Apricots from Spain are plentiful and receive a fairly good reception by buyers. Tomatos sell at slightly lower rates, although still rather higher than at this time last year. Cucumbers have been a firmer market during the last few days. French Beans continue to sell well. Peas are comparatively low in price and new Potatos remain a weak market. Some good Cauliflowers have met a ready sale and good Cabbages sell well at prices that are not particularly low. Mushrooms have recovered to a better price level and salads, especially Lettuces, are very cheap.

GLASGOW.

While there was no important change in prices in cut flowers last week, the tendency was slightly easier in certain sections. Scottish Irises sold at from 3d. to 6d. for 6's, and English Irises 10d. to 1s. for 12's; Gypsophila was plentiful and cheap at 1d. to 3d. per bunch; while Anemones realised 1d. to 2d.; Pyrethrums, 1d. to 3d.; Paeonies, 6d. for 3's; Lilium longiflorum, 1s. 6d. to 1s. 9d.; Lily of the Valley, 1s. 8d. to 2s. 6d.; Carnations, 1s. 6d. to 3s. per doz.; Roses, 2s. 6d. to 3s. 6d.; Sweet Peas, 2d. to 10d. per bunch; special, 1s. to 1s. 3d.; Gladioli, large, 1s. to 1s. 6d. per 6's; small-flowered, 6d. to 10d.; Poppies, 6d.; Nigella, 8d.; Lupins, 3d.; Cornflowers, 2½d.; and Asparagus, 9d. to 1s. 6d. per bunch.

In the fruit market English Black Currants sold at 1s. per lb.; French, 12s. (20 lbs.); Strawberries, 8d. to 1s.; Cherries, 4s. (6 lbs.); Peaches, 10d. to 1s. 3d.; Plums, 9s. to 10s. per sieve; Melons, 3s. 6d. to 5s. each; Apricots, 10s. 6d.; Pineapples, 3s. 6d. to 4s.; home-grown Grapes, 2s. 9d. to 3s. per lb; Grapefruits, 28s. to 40s. per case; Winter Nelis Pears, 7s.; New Zealand Apples, 17s. to 20s. per case; and Oranges, 25s. to 35s. Gooseberries were abundant and realised 2d. to 3d. per lb.

Tomatos declined in price to 7d. to 10d. per lb. for Scotch and 5d. to 6d. for Guernsey. Scotch Cucumbers were worth 5s. to 6s. per doz.; Lettuces, 1s. to 1s. 6d.; Beans, 1s. 4d. per lb.; Radishes, 1s. 6d.; Syboes, 3d. to 4d.; Mint, 3d.; Carrots and Turnips, 10d. to 1s. 1d.; Mushrooms, 1s. 6d. to 2s. per lb.: and Rhubarb, 3s. per cwt. Supplies of Peas exceeded the demand and were sold at prices so low as 7s. for 40 lbs.

TO ADVERTISE ONCE ONLY, IS TO INVITE FAILURE; TO ADVERTISE ALL THE YEAR ROUND IS TO ENSURE SUCCESS.

THE
Gardeners' Chronicle
No. 2220.—*SATURDAY, JULY* 13, 1929.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 63·2°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 10, 10 a.m. (Greenwich time). Bar. 30. Temp. 66°. Weather, fine.

The "Early Bite."

MANY gardeners are interested in grazing and all are interested in grass, and therefore it will not be without interest to comment upon the announcement made at the opening of the new Agricultural Research Station of Imperial Chemical Industries, Ltd., at Jealott's Hill, on a subject somewhat cryptically described as the "early bite." Gardeners who are accustomed to observe the gradual awakening of plants in spring may have formed hypotheses as to the nature of the awakening process. They probably have concluded that even before the season is propitious, plants are ready to awaken and begin to grow, but that their will to grow is held in check by unsuitable conditions of temperature. Broadly speaking, that is no doubt true. Unless temperature be congenial, growth will not take place. But broad generalisations are only true in a broad way, and this one is no exception. In addition to what may be called the major limiting factor, there may be other subsidiary limiting factors; for instance, in the case about to be considered it is now known that when temperature is propitious or at all events adequate for some growth, the growth of grass may be extremely dilatory owing to the fact that all supplies of nitrogen have disappeared from the soil during the winter. That being the case, it follows that if those supplies are obtained, spring growth will begin. Experiments made over very wide areas under different conditions in England, Scotland and Ireland show that this is true. If after a suitable basal dressing of phosphate and potash has been applied in late winter or early spring, it is followed by a suitable nitrogen fertiliser in February or March, then vigorous growth begins some three or even more weeks earlier than on corresponding pastures which have not been treated in this manner. Needless to say, growth may only take place when the rigours of winter are past and when sufficient moisture is contained in the ground but, as everybody knows, grass is an opportunist and will develop under any conditions which make growth possible. One of these conditions we now know is a ready and available supply of soluble nitrates. The natural pasture, after a winter has depleted the soil, contains too little available nitrogen for more than painfully slow growth, hence the marked quickening after an application of a nitrogen fertiliser in the early part of the year. The advantage to the agriculturist of this fact is evident, and gardeners also may make use of it when their lawns have been adversely affected either by summer drought or a previous hard winter. It is of interest to remark that each of the three chief fertilisers, nitrogenous, phosphatic and potassic, seem to exert a special influence on the time of maturing of crops. Nitrogen hastens leafy growth and so provides "early bite." Phosphates quicken the formation of grain—so much so that it is plain in parts of Canada that a dressing of phosphates may make the grain ripen sufficiently early to escape the clutches of early winter. Potash again, by conferring resistance against cold, may enable the crop to live through and maintain itself during winter weather. These seasonal influences of fertilisers, which are beginning now to be understood, are clearly destined to prove of importance, not only to the farmer, but also to the gardener.

The Hardy Fruit Crops of 1929.—In accordance with our usual custom, we have invited numerous gardener-friends to report upon the amount and condition of the hardy fruit crops in their districts, with the request that the reports be returned to us without delay. We shall be pleased to send forms to any fruit-growing readers who would like to send us reports of the conditions ruling in their areas.

The Rose Dell at Kew.—The rambling and climbing varieties of Roses in the Rose Dell, near the Pagoda, at Kew, are very attractive at the present time; varieties which are not self-supporting are trained to large or small assemblages of rustic poles, according to the size of the group, and height of the variety. The climbing and rambling type of Rose has received considerable attention from the hybridist during recent years, and by crossing and intercrossing the old rambler type of Rose with the Hybrid Teas, quite a useful and attractive break has been secured. While retaining the tall, free growth of the ramblers, the hybrids have a considerably extended period of flowering, and the blooms more resemble those of Hybrid Teas. A few of the most distinct and useful varieties flowering at Kew are Purity, a beautiful snow-white, free in growth and with luxuriant foliage; Paul's Scarlet Climber, an attractive scarlet-red sort, the blooms lasting in good condition longer than most varieties; Albertine, coppery-salmon, very beautiful in bud; Dr. van Fleet, soft blush-pink; Mary Wallace, rosy-pink shaded salmon; Chastity, another good white; Miss Helyett, a strong-growing Rose with carmine-pink blooms; and Jacotte, coppery-salmon, shaded yellow, with attractive, shining foliage. Particularly effective are a number of very vigorous white sorts; Rosa moschata, thirty feet or more in height, trailing through Holly branches; Madame d'Arblay, over a rustic arch; several large groups of the single white variety Silver Moon, and imposing masses of Seagull. The Hybrid Musk Roses are most effectively represented by Vanity, rosy-pink; Pax, white; Danae, yellow; Moonlight, lemon-white; and Nur Mahal, cramoise; Alberic Barbier, creamy-white; and Mrs. F. W. Flight, pink, are also of outstanding merit.

Antwerp International Horticultural Exhibition, 1930.—The work of preparation for the International Horticultural Exhibition, to be held at Antwerp during the spring and summer of next year, in connection with the World's Fair and other events in celebration of the Centenary of Belgian Independence, is proceeding apace, and the preliminary preparation of the ground for the open-air horticultural exhibits is completed. Those intending to exhibit plants and trees can now, by making previous arrangements, pay a visit to the site; this is of considerable advantage, as it enables exhibitors to judge of the amount and kind of material required, and of the effect likely to be produced in conjunction with the natural surroundings. Information of all kinds can be obtained from the Secretary, Antwerp Royal Horticultural Society, Rue de Péage, 10, Antwerp; or from the Secretary, Section Agricole et Horticole, Canal des Récolets, 17, Antwerp. There is no doubt that the exhibition will be on a very large scale, and that the Centenary festivities and the World's Fair will bring a concourse of wealthy and important visitors to the city.

An Orchid Hospital.—We are informed that a "hospital" for sick Orchids has been formed by Mr. W. B. Berger, a Colorado grower, who has equipped a section of his glasshouse with vita glass as a "ward" where delicate plants may become convalescent under the sun's natural ultra-violet rays. Not only has Mr. Berger not lost one plant grown from poor material this season, but he has promoted new growth in his hospital on plants supposed to be dying. A Moose-Antler Fern has also recovered under the natural ultra-violet rays, and a Rubber plant brought in practically dead with only one leaf is reported to be "exceedingly hearty" after a few months' treatment.

Presentation to Mr. Arthur Bedford.—Our readers are well aware that Mr. Arthur Bedford is the able gardener in charge of the extensive gardens and plant collections belonging to Lionel de Rothschild, Esq., at Exbury, Southampton, but not all are aware that for twenty-one years he has been a member of Committee and, latterly, Treasurer of the United Horticultural Benefit and Provident Society. The Officers and Committee of this useful and successful society, and the members, have not, however, overlooked his "coming of age," and on Monday, July 8, they showed their appreciation of his long services. Mr. and Mrs. Bedford were entertained to dinner by the members of Committee and a few friends, in London, and on behalf of the Society, Mr. Charles H. Curtis, who presided, presented Mr. Bedford with a handsome and suitably engraved gold watch, and Mrs. Bedford with a gold wristlet watch. There were about fifty friends present, and a very delightful evening was spent, as several of the visitors proved to be first-class musicians and entertainers.

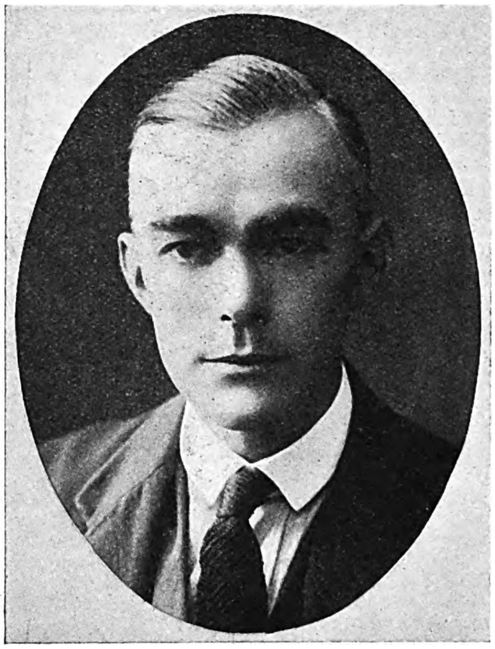
New Sports Ground and Pavilion at Wisley.—On Saturday, June 29, on the occasion of the visit of the Vincent Square Staff of the Royal Horticultural Society to the Society's Gardens at Wisley, a twelve-a-side cricket match was played between teams representing the London Staff and the Gardens Staff and Students. This was to commemorate the opening of the new sports ground and pavilion, given by the R.H.S. Council. The opening ceremony was performed, in the absence of the President, Mr. G. W. E. Loder, by Mr. W. R. Oldham, J.P. Mr. Oldham was in a dilemma; being Chairman of the Gardens Committee, he hoped Wisley would win, but being a member of the Council, he backed the Londoners. It is hoped, however, that he was satisfied with the result. The weather was glorious, and the game was witnessed by an enthusiastic crowd, representative of both departments. Wisley won the toss and batted first, but were all out for eighty-four, of which A. N. Rawes contributed a bright thirty-nine; Reynolds was responsible for some good bowling in taking seven wickets for twenty-nine. The visitors started none too well and six wickets were down for twenty-four, before Streeter and Douglas came together. Things now began to brighten considerably, and forty-six runs were added before Streeter was bowled for thirty-one. Douglas brought the score to within one run of the Wisley total before being run out for a hard-hit twenty-eight. With three wickets still to fall, two runs only were required for victory. Amid great excitement two more wickets fell without further addition. With the last man in a single was snatched; but the next ball gave relief to many pent-up feelings, and an excellent game ended in the extraordinary, but highly satisfactory result of a tie!

Horticulture in Jamaica.—Although the greater part of the space is devoted to agricultural matters, the *Annual Report* of the Department of Agriculture, Jamaica, for 1928, contains much that is of interest to horticulturists. The frontispiece to the *Report* consists of two reproductions depicting the Orchid Houses at Hope Gardens, wherein, as explained in the text, a collection of Orchids is grown, representing thirty different genera; recent additions include one hundred plants each of Cattleya Mossiae and C. Luddemanniana from Caracas, and twenty choice varieties of Brasso-Cattleyas and Brasso-Laelio-Cattleyas obtained from Messrs. H. G. Alexander, Ltd., Westonbirt, Tetbury. Cannas appear to be grown extensively in the Hope and the Kingston Gardens, but diseases and pests are causing some trouble in their cultivation. A new Plant House, sixty feet by fifteen feet, has been erected for the public display of Orchids in flower. Plants distributed free from the Hope Gardens numbered 345,270 during the year, while 120,738 plants, chiefly of economic subjects, were sold to planters. At the Castleton, Kingston Hill, King's House and Bath Gardens, good work continues in the planting and development of both ornamental and economic plants, and regrets are expressed that in the construction of certain roads some fine examples of Poinciana regia, Cassia fistula, Casuarina equisetifolia and certain Palms had to be destroyed. It is of homely interest to learn that at the Hill Garden "a good number of Pines and other suitable trees are supplied to meet the demand for Christmas Trees." The rainfall record is curious and, doubtless, governed by altitude, but there is a wide difference between the 24·85 inches at King's House Garden and the 107·42 at Castleton.

Legacies to Gardeners.—The late Mr. Montague Richard Waldo-Sibthorp, of Canwick Hall, Lincoln, who died on March 19, left £100 to his gardener, Mr. George Green.—The late Mr. Robert Henry Benson, of Buckhurst, Withyham, who died on April 7, left an annuity of £150 to his gardener, Mr. John D. Philpott, and his wife.—The late Mr. William John Worthington, of Rotherwood, Higher Bebington, left £100 to his gardener Mr. Thomas Gittins.—The late Mr. Alfred Hood, of Strathalyn, Rossett, Denbighshire, left £100 to his gardener, Mr. Benjamin James Guy, if still in his service and not under notice.—The late Sir Sidney Byass, Bart., of Llandough Castle, Cowbridge, Glam., left £200 to his head gardener, Mr. R. German, £120 to Mr. J. Evans, £130 to Mr. E. Humphrey and £50 to Mr. J. Jenkins, under-gardeners.

Ormskirk Potato Trials, 1929.—The National Institute of Agricultural Botany extends an invitation to parties of farmers, Potato growers and merchants, and agricultural advisory and administrative officers to visit the Potato Testing Station, Ormskirk, singly or in parties, on August 8, 1929, or if this date is inconvenient, on any week-day between July 29 and August 10. Besides the usual trials of new varieties of Potatos for immunity from Wart Disease the Institute is continuing for the Ministry of Agriculture and Fisheries investigations into the relative resistance of a number of varieties to Leaf-roll, and the possibility of growing in England seed Potatos free from virus diseases. These trials will be open to the inspection of visitors. In addition, visitors will be able to see the Lord Derby Gold Medal Trials—of which there are three separate trials this year—and Yield and Maturity Trials of the leading early and main crop Potatos. There is also a large number of demonstration plots of British and foreign varieties of Potatos, including those certified as immune in 1927 and 1928, and an interesting series of plots of some common Potato synonyms. Secretaries of branches of the National Farmers' Union and others wishing to organise parties to see the trials should write to the Superintendent of Potato Trials, Potato Testing Station, Lathom, Ormskirk, Lancashire, suggesting alternative dates. Individual visitors will be equally welcome, but they, too, should inform the Superintendent of the date of their visit not less than a week in advance. Ormskirk is conveniently reached by a frequent service of local trains from either Liverpool or Preston.

Mr. G. H. Nash, N.D.H.—Mr. G. H. Nash, who has been appointed Horticultural Organiser to the Warwickshire Education Committee, in succession to Mr. H. Dunkin, who has retired, is a native of Surrey, and served his apprenticeship at Selsdon Park, near Croydon. He also served in the gardens at Headley Park, Epsom, and Fetcham Park, Leatherhead. In 1914, he enlisted in the Coldstream Guards, and was later commissioned to the Royal West Surrey Regiment. He was demobilised from the Army with captain's rank. After the armistice, he was appointed chief instructor in horticulture at the Army Science College, Bonn, Germany, and afterwards transferred to the position of Chief Horticultural Instructor at the Army General and Commercial College, at Cologne. He was demobilised in 1920, and received an appointment under the Gloucestershire Agricultural Committee at their centre at Quedgeley, near Gloucester, for the training of disabled ex-service men in commercial horticulture. That position he held for two years, next proceeding to Earl's House School, Durham, to take up an appointment as Horticultural Instructor there. Two years later he was appointed Instructor of Horticulture at the University of Leeds, which position he held until taking charge in Warwickshire on July 1. Mr. Nash received high credentials from the University authorities, and left with the heartiest good wishes of his colleagues. In taking up his duties at Warwick, there is every reason to anticipate that he is entering up on a new sphere of activity in which his abilities will be displayed to advantage.



MR. G. H. NASH, N.D.H.

Government Dinner to the International Professional Horticultural Federation.—On Wednesday night, July 3, the Government entertained the members of the Fédération Horticole Professionelle Internationale, who were holding their annual conference in this country. In proposing the toast of "The Guests," the Right Hon. Noel Buxton, Minister of Agriculture, said it was fitting that this International Conference should meet in London when it could be entertained by a Labour Government, because the Labour party sympathised above all with international movements. The vital thing was to increase mutual understanding between peoples, and it was a happy thing that members of the Fédération Horticole Professionelle Internationale could be pioneers of peace while concerned with such delightful subjects as plants and flowers. He had himself been indebted to the international side of gardening, having learnt from the Japanese the idea of miniature landscape and practised the art in several places. The Government stood for the free entry of foreign plants, except where it must be limited on account of disease. Horticulture was also an instrument of social welfare. He was glad to know it was becoming increasingly a democratic institution. Till lately it had been somewhat plutocratic, but he had been greatly struck by the change in the gardens of the working classes both in town and country. Cottage gardens now frequently grew Darwin Tulips, and he invited their approval of the National Gardens Guild to which Her Majesty the Queen was Patroness, which existed to encourage gardening in towns and even in slums. It was operating in mining areas and introducing cultivation even in prisons. Local authorities were beginning to encourage window boxes by supplying boxes and soil at cost price.

Dahlia Year Book.—When Mr. W. J. Chittenden died, the National Dahlia Society lost a hard-working Honorary Secretary and an excellent Editor of its Year Book. Fortunately, the mantle of his genius has fallen upon his son, Mr. W. E. Chittenden, who is building firmly on the broad foundations laid by his father. The *Dahlia Year Book* affords further evidence of the happiness of this succession for it is a useful publication, rendered attractive by the numerous illustrations, one of which is in colour; unfortunately, the portrait of Mr. J. Emberson, so long the Hon. Show Superintendent, is very poorly reproduced. Mr. T. Hay, M.V.H., who acquired the late Mr. C. Harman Payne's collection of books on the Dahlia, deals with the flower from the historical point of view, and in a way that appeals to lovers of old horticultural literature. Mr. F. G. Treseder writes of Dahlias in Wales and Mr. J. Coutts describes the usefulness of Dahlias in our great National Gardens at Kew. Mr. D. B. Crane deals with the Uses of the Dahlia as a Cut Flower, and had he visited the flower markets at Aalsmeer he would be even more enthusiastic than he is regarding the future market value of Dahlias as cut flowers. The same author describes the numerous Dahlias chosen at the R.H.S. meetings to be tried at Wisley. Greatly daring, Mr. A. Vasey, considers the future of the Dahlia, while Mr. Robert Fife deals very practically with the Cultivation of the Dahlia, and Mr. Riding's ripe experience and judgment is shown in Dahlia Novelties of 1928. The Society's exhibition is reported in detail, and there is a list of members of the Society, and other interesting matter, the whole making up a booklet useful alike to the amateur and the professional grower of Dahlias, and one that should make for an increase of membership.

Belgian Tax on Florists' Flowers.—Florists in Brussels are making vigorous protests against the new decree, promulgated on June 8, which has the effect of varying the incidence of the Luxury Tax as it affects the sale of flowers, and of still further complicating the already confusing and difficult calculations which the Belgian florist is obliged to make before he can sell the simplest floral offering or bouquet. The new decree has reference to plants in pots, and lays it down that the tax on pot plants of over twenty-five francs in value is to be six per cent. of the price; but that if the plant is sold in conjunction with something else, for instance, a basket or a fancy pot, the tax is to be charged on the combined price, unless the basket, etc., has already been taxed when it was purchased by the florist, in which case only the plant itself is taxed when the sale is effected. Where plants in pots and cut flowers are sold together—which can easily be the case where a presentation basket of flowers is made up—the matter is still further complicated by the fact that the cut flowers are taxed on a different scale viz., ten per cent. of the price. A strongly worded protest has been addressed by the Belgian Florists' Union to the Minister of Finance on the subject of the decree, which came into force on June 15.

Nitrogen: Synthetic and Natural.—It is officially announced that an agreement has been arrived at between the Chilean Finance Minister, Senor Pablo Ramirez, and Imperial Chemical Industries, Limited, having for its purpose closer co-operation between synthetic nitrogen and Chilean nitrate of soda, on similar lines to the agreement concluded between the Chilean Finance Minister and the I. G. Farbenindustrie A. G., which agreement is being announced concurrently. An agreement has also been concluded between Imperial Chemical Industries, Limited, and the I. G. Farbenindustrie A. G., with regard to co-operation between those two companies in the production, marketing and propaganda of synthetic nitrogen products. The agreements provide for a common policy to be pursued in the future regarding propaganda and similar matters relating to fertilisers. A substantial basis for the stabilisation of the nitrogen industry has thus been reached, and it should be noted that this stabilisation is accompanied by a substantial reduction in the prices of nitrogenous fertilisers amounting to 10s. per ton. This is a matter of great importance to the agricultural and horticultural industries of the world. Even before this latest reduction, the prices of nitrogenous fertilisers were substantially lower than they were before the war. The large nitrogen groups are, therefore, making a considerable effort to assist farmers in the present crisis through which the agricultural industry is passing. The agreement between the three largest producers of nitrogenous fertilisers in the world, outside the United States, should pave the way for a stabilisation of the nitrogen industry, inasmuch as it is proposed to invite the other national groups of nitrogen producers to come into line.

The John Melrose Agricultural Laboratory, South Australia.—Much has already been done in South Australia in the way of agricultural research and local farmers and graziers have derived marked benefits from the application of scientific methods to practical operations. Bequests by the late Mr. Peter Waite led to the establishment of the Waite Agricultural Research Institute, where, during the past four years, valuable scientific investigations have been conducted. A further gift of £10,000 by Sir John Melrose has been utilised in the erection of a chemical laboratory, in which research work will be carried on in conjunction with the Waite Institute. The John Melrose Laboratory was declared open recently by His Excellency the Governor, General the Hon. Sir Alexander Hore-Ruthven, V.C., K.C.M.G. The Premier (Hon. R. L. Butler) expressed his deep appreciation of the generosity of Sir John Melrose, whose desire to help not only South Australia, but the Commonwealth as a whole, could not have been shown in a more fitting manner. The Minister of Agriculture (Hon. John Cowan) said that the Waite Agricultural Research Institute had already proved of great value to the people of the State, and by the addition of the John Melrose Laboratory it would rank as one of the best-equipped Institutions of its kind in the world. South Australia was essentially an agricultural country, and for many years its progress and prosperity would depend chiefly on the development of the great primary industries. South Australian farmers, he was sure, would be prepared to follow the advice of the experts of the Waite Institute. If by the adoption of more scientific methods, judicious use of super-phosphates for top-dressing natural pastures, and the cultivation of subterranean Clover, production could be increased, the stock-carrying capacity of the land improved, and the bounds of settlement extended, the benefits to the State would be immeasurable.

Appointments for the Ensuing Week.—TUESDAY, JULY 16: Royal Horticultural Society's Committees meet; London and South of England Viola and Pansy Society's Exhibition; Roundhay (Leeds) Horticultural Society's Exhibition; Leeds Paxton Society's visit to Roundhay Show; Wolverhampton Floral Fête (three days). WEDNESDAY, JULY 17: Guildford and District Gardeners' Association's exhibition; Haywards Heath and Mid-Sussex Horticultural Society's Exhibition (two days); Liverpool Horticultural Association's Summer Show (two days. THURSDAY, JULY 18: British Carnation and National Carnation and Picotee Societies' Show (two days); Brentford and Chiswick Horticultural Society's Show; Birmingham Horticultural Society's Floral Fête and Exhibition (two days); Hull and East Riding Rose Society's Annual Exhibition. SATURDAY, JULY 20: Worcester Park Horticultural Society's Exhibition; Sundridge and Brasted Society's Annual Exhibition; Leeds Paxton Society's Rose Show; Alderley Edge and Wilmslow Flower Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society's Show at Chiswick.*—At twenty-five minutes to six on July 8, the Queen, accompanied by His Royal Highness Prince Albert with their Royal Highnesses the Prince of Wales, and Prince Alfred, arrived, and was received by General Fox and other members of the Council, His Grace the Duke of Devonshire, the President of the Society, being unfortunately ill. Upon entering the tents, Her Majesty was pleased to accept at the hands of General Fox, a magnificent bouquet, formed from the rarest flowers in the exhibition. The royal party then proceeded to inspect the exhibition tables, passing along the whole line, and examining the varied objects as they presented themselves. The principal exhibitors, stationed within the barriers, had the satisfaction of remarking personally what degree of interest their stands excited. The large conservatory was next visited, after which, having rested for a few minutes in the royal tent, Her Majesty walked round the Arboretum, passing the great Poplar tree transplanted in 1853 by M'Glashan's apparatus, in the presence of Prince Albert, and, visited the ground near the orchestra, where the Queen paused to listen to the military bands; at twenty minutes to seven Her Majesty returned to her carriage, having previously been pleased to express her satisfaction at the "beautiful show." And a most beautiful show it was—in every way worthy of being exhibited before the Queen. To the exhibitors themselves it must have been a day to be remembered with honest pride, for it was the first time that the Queen had visited in public any of those great horticultural exhibitions which are the summer glory of her metropolis, and on that occasion the exhibitors nobly sustained the reputation of their country for excellent gardening. *Gard. Chron., July 15, 1854.*

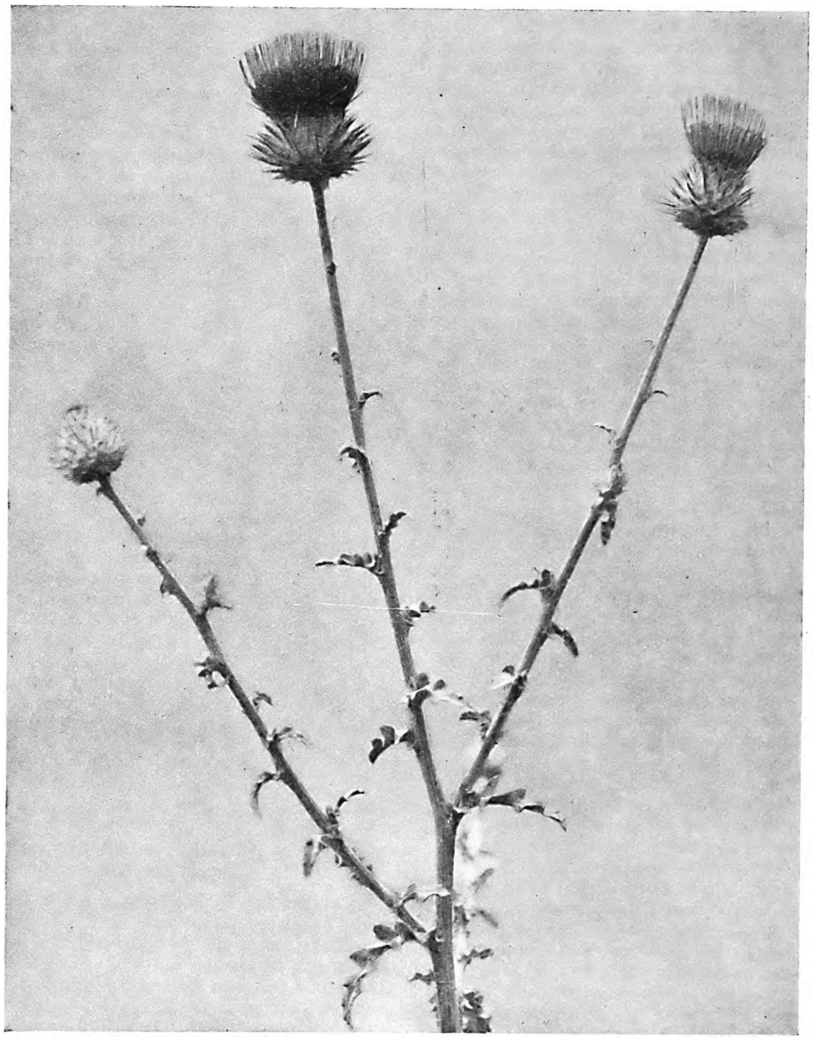


FIG. 11.—CIRCIUM OCCIDENTALE VAR. COULTERI.
(see pp. 28 and 35.)

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Bulbophyllums and Cirrhopetalums.—Many species of these closely allied groups produce their remarkable flowers during the spring and early summer months. When in flower these Orchids are always a source of interest, the singular structure of the blooms commanding attention, while the free-flowering qualities and attractive colouring of many of the species make them very useful and decorative Orchids. Some of them have a pleasant scent, as in B. cosmosum, but others, such as B. Ericssonii, emit a very unpleasant odour during certain parts of the day. The plants thrive well when grown in pans or baskets suspended from the roof of a warm house. During the growing season they require ample moisture both at the roots and in the atmosphere, although saturation should be avoided. Shade the plants from strong direct sunshine. Many of the Cirrhopetalums require planty of light to induce the plants to flower freely after the growth is complete. During the winter when less water is naturally required, the plants should not be subjected to long periods of drought, and enough water should then be given to prevent the pseudo-bulbs shrivelling. At this season new roots are being produced freely, and any plants requiring fresh rooting material should be attended to forthwith. It is not advisable to disturb the roots unless the plants have overgrown their receptacles and require dividing up or potting on. In such cases the old compost and decayed roots and growths should be removed carefully, severing the rhizome between the third and fourth pseudo-bulb. Some of the species are of a rambling nature and may be made more compact with the aid of a few wire pegs, taking care not to twist the rhizomes too sharply, and keeping the bases of the pseudo-bulbs about level with the pot rim. Pot them moderately firmly, using a compost of three parts A.1. and Osmunda fibre, and one part Sphagnum-moss, adding crushed crocks as the work proceeds, to keep the compost porous. Plants that are not in need of fresh receptacles should have the old and sour portions of the soil removed, disturbing the live roots as little as possible, and fresh compost carefully and firmly worked among the roots, finishing the surface off with a little extra Sphagnum-moss. Water should be provided sparingly until the roots are well-established in the fresh soil. Small-growing sorts such as Bulbophyllum barbigerum and Cirrhopetalum miniatum, should be grown in very little compost and accommodated in small receptacles or on blocks of wood. Spray the plants occasionally with a weak solution of a safe insecticide to keep thrips, etc., in check. Small scale insects should be removed so soon as detected.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Budding Fruit Trees.—The propagation of fruit trees by budding has proved to be so advantageous that it is now the most common method of increasing nearly all kinds of fruits. To be successful, however, it is essential that the sap should be in full flow, and that both the bud and the stock should be in the right condition, which means that they should be sufficiently matured to cause little or no trouble in removing the bud, or in raising the bark upon the stock. If the stock is in a suitable condition, the bark will lift away without any forcing, which would bruise and otherwise injure the soft tissues lying between the bark and wood; the same applies to the bud. Cherries are about the first to be ready, and they are followed by the Plum and the Pear, and later, the Apple. Owing to the very dry season, the growth on most trees is well matured and the buds well advanced. In the case of the Cherry the buds take more readily when they are not too plump. Indeed, the same may be stated of all fruit trees. With the exception of Peaches and Nectarines, most hardy fruit trees are "worked" close to the soil, and, if standards are desired, the stems are "run up" to the necessary height. Cherries are commonly worked at the desired height, *i.e.*, half-standard or standard, but a standard stem is made more quickly when the stock is budded at the soil level. Budding is best performed in dull weather, and should the bark not lift readily, water the soil well about the stocks and delay the operation for a few days. Do not trim off any superfluous growths immediately before budding, or the flow of sap may be checked. When cutting a shoot for buds, remove all the leafage, with the exception of half-an-inch or so of the petioles, which will prove advantageous as handles with which to work the bud into position later. Place the shoots in water at once. Shoots of medium size produce the best buds. When starting operations, the bud should be "taken" first, as any incision on the stock should not be unduly exposed. The bud is removed by making a slicing, shield-shaped cut with a sharp knife, commencing less than an inch below the bud and gradually going deeper as the blade passes under the bud. Then with a slight lift of the blade, break off the bud with a strip of the bark attached. By bending this strip back a little, the bark will part from the small piece of wood still covering the seat of the bud. Remove this portion of wood by a gentle pull. If the bud is in a suitable condition the seat or heel of it will be well exposed. This will ensure its resting well down upon the wood of the stock, and unless this seat is well developed, it is not much use inserting the bud, and another should be tried. On the stock make a long, T-shaped cut close to the soil level, gently lift the two flaps of bark and slip the prepared bud under and push it well down. Avoid any bruising or forcing in of the bud. The upper end of the shield should be cut square so that it fits exactly with the cross cut on the stock. Tie the bud in firmly, either with Raffia, or coarse strands of worsted. It is essential that the tie should be made firm just behind the bud to ensure the seat or heel fitting close down upon the wood, but at the same time no undue constriction should be employed.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Strawberries.—Good runners are rather later in developing than usual, and the young plants should be watered regularly if the weather is dry, and in two or three weeks they will be ready to sever from the parent plants; it is at this stage that care is necessary to obtain the most satisfactory results. The great point is to get a good start and keep it. The runners should be layered so soon as ready, and should not be kept in the small pots for more than four weeks. Repot them into five- or six-inch pots, in a compost of good fibrous loam, with a little old Mushroom-bed manure, lime-rubble and bone-meal added. Use clean pots and crocks and apply a sprinkling of soot over the latter; pot the plants firmly and then stand them on a hard, solid bottom of ashes, thick enough to prevent worms from coming through it. Place them in an open space in full sun, far enough apart for the air to circulate freely among them. With such treatment the plants will make a mass of roots before the end of the season. They will need liberal supplies of water. Much depends on the quality of the compost as to whether manure water will be needed at this stage; if the soil becomes exhausted, a little help with fertilisers will enable the crowns to plump up properly. Growth should be completed by the end of October; by that time the plants ought to have formed good, solid crowns, and they should be rested during November and December, especially the early varieties, but should not be allowed to get too dry at the roots.

Cherries.—The crop of early Cherries will now be finished. All trees which do not require repotting may be turned out, well cleansed and plunged in the open air for the remainder of the summer. Choose a light, airy, but sheltered position, and if the pots are well filled with roots the plants should be well mulched with decayed manure to feed the buds and leaves, and to economise labour in watering. Trees which require a shift may be kept under glass two or three weeks after being repotted to encourage the formation of fresh roots. Use a compost of good, rather strong loam, lime rubble, with a little bone-meal, and with or without a little old cow manure, according to the quality of the loam. The ball of roots should be thoroughly moist at the time of potting, while the compost can hardly be too dry, as it must be rammed firmly to prevent the escape of water. Very late varieties should have a light, airy section of the house to themselves, and should be protected, as, next to birds, the greatest enemy is dampness, especially when the fruits are fully ripe and outside conditions are unfavourable. Plenty of air on fine days, and possibly some light shading, is beneficial, but the latter should not be permanent.

Plums.—The growth of these trees should be kept well pinched, not only to let in light and air and to force the sap into the flower buds, but also to keep aphides in check, as it is upon the young shoots that these pests thrive and multiply. The trees should be kept in sections, according to their fruiting time, and when the earliest are cleared of fruits they may share the open quarters of the Cherries, and be afforded similar treatment. Midseason and late varieties should be top-dressed and fed regularly with warm, diluted liquid soot and guano water alternatively. Syringe the trees with soft water only, otherwise the "bloom" of the fruits will be damaged, and this should be kept perfect. These late varieties do not like hard forcing and do not require it, as the best varieties can be ripened to perfection in an ordinary, well-ventilated house.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Hemerocallis.—The Day Lilies form a useful group of free-flowering herbaceous plants at this season, and are ideal for grouping either in the herbaceous border or in the semi-wild garden. For the latter purpose they are well adapted, and few plants give more satisfaction when once established. Under such conditions their requirements are few, provided the site was well prepared before planting. They may be used with effect by the side of ponds, or may be interplanted with Ferns, where their flowers and foliage will mingle effectively with the fronds of the Ferns. The Day Lilies last fairly well as cut flowers, and are delightfully fragrant.

Budding Roses, etc.—Welcome rains have fallen and the budding of Roses may be commenced whilst the sap is flowing freely. The stocks will require a moderate amount of pruning, removing weak and superfluous growths and clearing away an inch or two of the soil around the base of the stock before commencing to bud. The selection of buds is an important factor if successful results are to be obtained. Well-ripened growths that are carrying or have had flower buds cut from them, should be selected. These shoots should be placed in damp moss or water to prevent the buds becoming shrivelled or dry before being used. Under such conditions they will keep in good condition for several days if the stocks are not ready. As the most successful results are obtained if the buds are inserted when the bark parts freely from the wood, budding should, when practicable, be done immediately after rain. Many scarce and rare shrubs may also be budded if suitable stocks are at hand and time is available for this interesting operation that is so seldom practised in private gardens.

Routine Work.—Beds of Violas and Pansies should be examined frequently, removing the old flowers before seeds are set, otherwise their flowering period may be shortened considerably. In this respect the well-known variety Maggie Mott is a useful sort to grow, as it rarely sets any quantity of seeds. Jersey Blue Gem has also, within the last two years, become extremely popular, and it is a first-class plant for bedding out or for planting at the front of the mixed border, being particularly free and continuous flowering, yet of neat and compact habit of growth. Old plants wintered in the open are now smothered with bloom and have none of that loose, straggly growth found in many varieties. Other colour forms of this variety have appeared, and it is hoped they will prove as free and useful as the parent plant. After the recent rains herbaceous plants are growing very fast, and close attention should be given to staking and tying, as it is impossible to get the best effect if the growths are once broken down by wind and rain storms.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN,
Brocket Hall, Hertfordshire.

Euphorbia pulcherrima.—Cuttings of this, if inserted some weeks ago, as advised, should now have filled their receptacles with roots and should be repotted into larger pots. The rooting medium may consist chiefly of good fibrous loam, with one part of peat, and a good quantity of sharp sand added. After potting, apply water sparingly until the roots are active again. Frequent sprayings of the foliage will prove beneficial to the young plants, especially during hot weather. The one-year old plants that were rooted late to produce decorative plants in small pots last season will, if potted on, make good specimen plants if the young growths which are produced at the base of these cut backs are reduced to three in number and the old compost is partly removed from the roots before repotting them into pots one size smaller. They should be grown on for a time in a moist atmosphere, in a position near the roof glass, and potted into larger pots when this becomes necessary; at a later date the plants should be grown under cool, airy conditions until about the second week in September. The bracts produced in winter will be greatly improved by this cooler treatment during this stage of growth. Euphorbia fulgens requires much the same treatment as that recommended for the above, although I always pinch this back early and then allow three shoots to develop.

Begonia Gloire de Lorraine.—Early rooted cuttings of this plant will now be ready for transference to the receptacles in which they are to flower; the pots may vary in size from five to seven inches, according to the strength of the plants and also the requirements of the grower, as in many instances the smaller pots are the more suitable for house decoration. The compost for this potting may consist of good turfy loam and leaf-mould, with broken charcoal and sand added. These Begonias resent firm potting and the compost should only be pressed lightly around the roots with the fingers. One other point to remember in the cultivation of Begonias is that they greatly dislike lime. So soon as the pots are well filled with roots give a mild stimulant in the form of soot water, which will tend to give the foliage a dark green colour. A few hanging baskets may also be filled with specimens at the present time, as this Begonia is admirably suited to this purpose. Other winter-flowering Begonias should be kept growing, never allowing them to become starved in their pots before repotting takes place. Fumigate the plants at intervals with nicotine to keep mite in check.

THE KITCHEN GARDEN.

By W. G. STAWARD, Gardener to LADY MARGARET RYDER,
Knowle Gardens, Dunster, Somerset.

Globe Artichokes.—A mulch of half-decayed manure will help to prolong the crop of Globe Artichokes on light, gravelly soils, and applications of liquid manure should be given at frequent intervals.

Salsify and Scorzonera.—These will now be ready for thinning, and as it is difficult to pull the roots out of the ground completely, a sharp pointed stick should be employed to loosen the ground sufficiently, to enable the unwanted plants to be removed intact. Thin the plants to at least ten inches apart, and afterwards apply a dusting of soot between the rows and hoe it in.

Seed-sowing.—Sowings of Endive, Lettuce, Turnips, Radishes, etc., may be made according to requirements. Should the ground be dry, soak it well before sowing the seeds.

Spinach.—Another sowing of the ordinary round-leaved variety may be made in ground that has been cleared of early Potatos or early Cabbages, for as the season advances fresh leaves of this are esteemed and late sown plants do not run to seed so quickly as the early ones.

Brussels Sprouts.—As the early plants of Brussels Sprouts are now of fair size they may have the soil drawn up around their stems to steady them, but if the plants grow very tall and need supports, it is wise to tie them to stakes. If sufficient soil cannot be drawn up about the plants make use of a spade for this purpose, so as to place plenty around the neck of the plants for support afterwards. Dust alum between and soot or slaked lime around the plants to prevent slugs and snails from injuring the "buttons," and keep a sharp look out for caterpillars; the only sure method of dealing satisfactorily with these pests is to pick them off by hand.

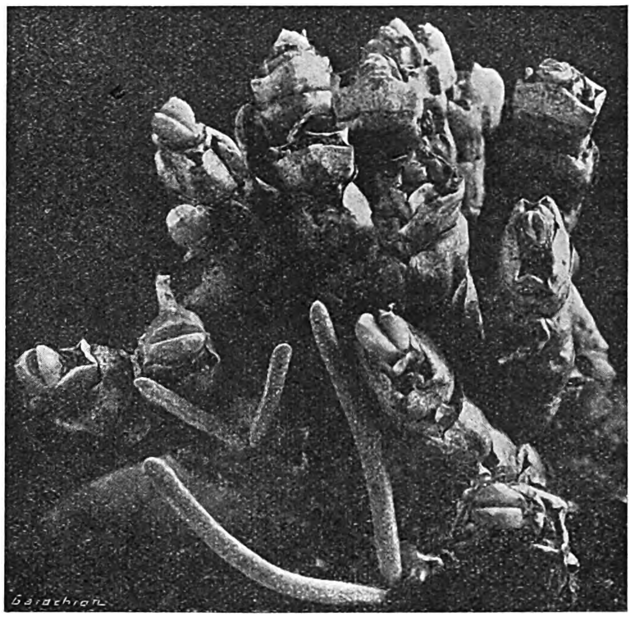


FIG. 12.—MONILARIA CHRYSOLEUCA.

Plant at rest; natural size. (see p. 34.)

Shallots.—So soon as the Shallots have finished growing and the leaves commence to turn yellow, they should be lifted and dried in the sun, after which they may be stored in a dry, airy room.

FOR NORTHERN GARDENERS.

By JOHN HILL, Gardener to ANDREW ARTHUR, Esq.,
Rosemont, Monkton, Ayrshire.

Vegetables.—Vegetable Marrows should be well supplied with water, and have their growths thinned and regulated at intervals to prevent crowding. The leaders should be stopped to encourage the production of side-shoots, on which the female flowers are produced most freely. If sufficient manure was given in preparing the site, no further stimulants will be necessary, but if growth seems poor, liquid manure should be given after watering. All Brassica beds should be well cultivated and before the plants get too tall they should have soil drawn up to them in cases where they are liable to be blown over by the wind, but in many gardens this will not be necessary.

Celery.—Give this crop abundant supplies of water during dry weather and, to prevent quick evaporation, a thin layer of dry soil, scraped from the sides of the trenches, should be spread around the plants. Remove basal side-growths as they appear.

Shallots.—These, having finished their growth, should be lifted carefully and placed under cover, in full sun if possible, to finish the ripening process. The keeping quality of the bulb depends on this being properly done; plenty of air and sun, and a water-proof position, are all that is necessary.

Summer-pruning and Training Wall Trees.—This work should now be carried out, and if stopping of unwanted shoots has been attended to, it is comparatively easy. On fan-trained, stone fruits a supply of young growths should be maintained all over the tree, and laid in temporarily, but care should be taken to straighten the young leaders now, while green, as it is scarcely possible to do this when the growth becomes woody. If the breast wood has been allowed to grow, as is usual, remove all growths not required by cutting them back to four or five leaves, according to the strength of the shoot. The top of the trees should be attended to first, doing the pruning in about three operations, and working from the top to the bottom. Continue to stop lateral growths on cordon Apple and Pear trees, leaving a few leaves each time. Give these plenty of water at the roots, and if they are carrying heavy crops they should be given liquid manure or chemical fertilisers to assist them, or the fruits will be of poor quality. Morello Cherries should have a good supply of young growths laid in all over the tree, all unwanted growths being cut clean away. All growths retained on all wall trees should, if possible, come from the top side of the branches. Extra strong leaders should be stopped, to the benefit of the weaker growths. Where wood-lice are present, steps should be taken to destroy them before Apricots and Peaches begin to ripen. For this purpose I find nothing so good as slices of Potato placed close against the wall at intervals all over the tree, these being examined regularly and the wood-lice destroyed.

ORCHID NOTES AND GLEANINGS.

MAXILLARIAS.

These Orchids are of comparatively easy culture, and thrive well when grown at the warm end of the cool house, in a position where a free circulation of air can be maintained around the plants, and where they may be shaded from bright, direct sunshine. If the atmosphere is allowed to remain close, and constantly charged with moisture, the foliage of the plants will become spotted and unsightly.

As the various Maxillarias pass out of flower, they should receive attention at the roots. The scandent growing sorts, of which M. meleagris and M. tenuifolia are typical examples, are best grown on blocks of wood or small teakwood rafts fixed firmly into pots, as these do not require removing annually unless they become overgrown; some of the old fibre and moss may be removed and fresh compost inserted, fastening this when required with some very thin copper wire. Such compact growing sorts as M. picta, M. arachnites, and others, can be grown in well-drained pots, while the beautiful M. Sanderiana should be planted in a teak-wood basket, and grown suspended from the roof in order that the flowers may be shown to the best advantage, as the flower scapes are often produced in a downward direction; for some of the strong-growing species a little fibrous loam is beneficial in the compost.

Water should be afforded carefully and sparingly after repotting, until the roots are well established in the fresh soil, when ample supplies will be needed each time the compost approaches dryness. A keen search should be made at frequent intervals for thrips, which quickly damage the young growths of Maxillarias. Regular fortnightly sprayings with weak solutions of an approved insecticide will keep these pests in check, but should they gain a hold, dip the foliage in the insecticide, tilting the plants afterwards to allow the moisture to run free from the growths, which may also be cleaned with the aid of a wing feather and a few drops of insecticide. *D. G.*

ANOECTOCHILI.

The genus Anoectochilus is distributed throughout the tropics of the Old World. The species are terrestrial Orchids with small, unattractive flowers which are borne on an erect spike. Their beauty lies in their velvety leaves, and for this reason they should be given a place in every Orchid house. The succulent leaves are ovate to lanceolate in shape and, in some of the species, are beautifully variegated. The following are natives of the Malay, where they are found growing beneath the decayed leaves in dense jungle, from 2,000 feet upwards :—

A. geniculatus is a delicate little plant with fleshy stems two to three inches tall. The leaves are ovate, purplish-brown, velvety and reticulated with gold. The whole plant resembles A. regalis, which is a native of Ceylon, and is probably a form of this species.

A. pectinatus has larger leaves than A. geniculatus. They are green, three inches long and one to two inches wide. The flowers, eight to ten in number, are borne on a spike six inches long.

A. Reinwardtii is, without doubt, the best of the Malayan species. It is a small plant similar to A. geniculatus. The leaves are one to two inches long and one inch wide, deep bronze, with a velvety sheen and reticulated with gold. This is a variable plant and in cultivation the leaves become much lighter. The writer collected a number of plants and endeavoured to grow them in a semi-sheltered position, but not protected from the sun, and it was noticed that the brilliant sheen disappeared and the leaves turned brownish-red.

The members of this genus are considered to be difficult to cultivate and should be grown under bell glasses. They like a warm, humid position, and the compost should consist of one-third fibrous, sandy peat and two-thirds chopped Sphagnum-moss mixed with a liberal sprinkling of broken crocks. Given these conditions, the leaves will remain on the plant for several years. *F. S. Banfield, F.L.S., Malaya.*

INDOOR PLANTS.

LIBONIA FLORIBUNDA.

In this subject we have a small, compact-growing, soft-wooded plant that bears a profusion of tube-shaped flowers which are dull red and orange in colour, while its free-flowering disposition makes it a very useful plant for decorating the conservatory, especially during late winter and early spring.

Cuttings of soft young shoots taken early in the year, inserted in small pots filled with fine sandy soil, placed in a propagating case in an intermediate temperature, and kept close, moist and shaded, will root in about three weeks. When rooted, they should be potted singly into 3-inch pots, using a mixture of two parts fibrous loam, and one part good leaf mould, with enough sharp sand added to keep the compost open, and the plants placed in a house having a temperature similar to that in which the cuttings were rooted. When the young plants are growing freely less fire heat will suffice. Syringe them overhead daily and admit a moderate amount of fresh air; stop the young shoots and support the plants with neat stakes.

In about nine weeks from the first potting enough progress should have been made to admit of the plants being moved into 5½-inch pots which will be found large enough to flower them in, using a compost similar to that advised for the first potting, but with the addition of some dried cow manure passed through a ½-inch sieve. When the plants are again growing freely give more air and gradually accustom them to cool-house treatment; syringe them freely and give frequent applications of liquid manure and soot water.

So soon as the flower buds appear remove the plants to their flowering quarters, in a temperature not lower than 45° by night, where they will continue to flower for many weeks. After flowering, give the plants a slight rest, and prune the growth hard back, and when growth again becomes active pot them on into larger pots and repeat the treatment afforded them as young plants.

Red spider sometimes troubles L. floribunda, but may be kept in check by the free use of the syringe. *J. L. McGoogan, Wisley.*

TREES AND SHRUBS.

CYTISUS SESSILIFOLIUS.

Well-grown plants of this very desirable species are rarely seen in English gardens; but, flowering as it does, in June, when most of the earlier Brooms have ceased, it can be very attractive, as many continental gardeners have proved. C. sessilifolius is a very old introduction, coming to us three centuries ago. Although a native of southern Europe and northern Africa, it is deciduous and perfectly hardy. It makes an elegant, rather twiggy bush of about five feet. The grooved branches are smooth, and the trifoliate leaves so short in the stalk, especially on the younger wood, that they appear to be connate. This foliage is hairless and of a delicate glaucous-green.

The bright yellow flowers, each half-an-inch long, are borne in small racemes at the ends of the current year's shoots, and the flowering period is extended throughout the early summer. Seeds afford the best means of propagation. Like most others of it race, C. sessilifolius is a lover of sun and dry, warm, stony soils. But it does not resent some shade, and can be a charming object in thin woodland.

VINCA DIFFORMIS.

For many years I have grown the winter-flowering Periwinkle as one knows it in southern Europe. That is to say, it is a plant much after the style of V. major, but it is entirely hairless and the smaller flowers, pale lavender or white, have diamond-shaped, or nearly rhomboidal, segments, with the points deflected so that the flower suggests a whirling screw. The blooms, of course, appear from November to spring, but plants much snubbed by frost will postpone affairs until May or even later.

Now there comes from a generous friend a plant labelled V. difformis, which is quite unlike the above, save in manner of growth and flowering season. In this form the leaves are narrower and rather a duller green. The corolla of the flower is a deep violet, and the segments are so narrow that they are little more than thin dagger-shaped rays, straight as wheel-spokes, and sharply-pointed. Is this " the deep purple-blue Italian plant sometimes called acutiflora " (E. A. Bowles: *My Garden in Autumn and Winter*), or is it a western (Spanish) representative of this confusing tribe ? *A. T. J.*

STEWARTIA PSEUDO-CAMELLIA.

There is a fine bush of this tree now in bloom in the grounds of Mr. Wilson, at Cannizarro, Wimbledon. The species is the most recent of the introductions of the genus to this country, and Messrs. J. Veitch and Sons were instrumental in introducing it to the gardens of this country, from Japan in 1879. It has not yet, perhaps, had time to show what it can do in this country, but it seems to thrive better here than the species which have been introduced from America. The flowers are white, made up of five rounded, concave petals that form a cupped bloom. Evidently the specific name alludes to the flowers resembling a single Camellia to which the species is allied, but differs in having deciduous leaves. The orange-yellow, incurving stamens add to the similarity.

It is a beautiful and by no means common shrub in gardens; and in autumn becomes ornamental again when the leaves turn red and bright yellow. The genus is sometimes placed under Malachodendron, and the above name is sometimes spelt Stuartia, in honour of John Stuart, Earl or Bute, but Linnaeus spelt it Stewartia, when describing S. Malachodendron in 1741. *J. F.*

GENISTA CINEREA.

This is one of the most valuable of the tall Brooms, whether as a single specimen or massed in large beds and borders, for which latter purpose it is especially suited.

It averages nine to ten feet in height, and the long, slender branches are very freely furnished with clusters of rich yellow blossoms from about mid-June onwards.

G. cinerea is a native of south-west Europe, and although this is rather a warmer region than the British Isles, this shrub is perfectly hardy at Kew, where it thrives and flowers freely in beds and borders, and semi-wild in the grass of the open woodland. One peculiarity is that the plants at Kew do not produce good seeds, but cuttings root readily if inserted during August in a bed of sand or sandy soil in a cold frame.

Its nearest ally in point of height and season of flowering is the Madeira Broom, Genista virgata, which produces seeds freely, self-sown seedlings being common in the shrubbery borders and the woodland. In flower, however, it does not produce the gorgeous mass of rich yellow colour which is the outstanding feature of G. cinerea. *D.*

NOTES ON SPECIES OF RHUS.

The genus Rhus embraces some of the most beautiful of plants for autumnal colour effect that it is possible to cultivate in our gardens. Many of the species are notorious for the poisonous effect which they have on the skin, but, if this is realised at the beginning, and reasonable care taken when any necessary pruning or propagation is being done, the advantages gained by having a wonderful display of multi-coloured foliage will outweigh the disadvantages. Generally, it may be taken that the pinnate-leaved kinds, such as R. Vernix, R. succedanea, R. vernicifera and R. trichocarpa while, perhaps, not being quite so virulent in their effect as the real Poison Ivy (R. Toxicodendron and its var.

Rydbergii), nevertheless do set up in some people a violent irritation on the arms and hands, which will prove very difficult to get rid of.

Of the many species and varieties in cultivation, the following are particularly worthy of notice :—

Rhus cotinoides (Chittam Wood), a small, deciduous tree or large shrub, which has a localised distribution in the south-eastern United States of America, and would appear to be somewhat scarce in cultivation, although it was sent to England over forty years ago by the late Professor Sargent. The decorative value of its flowers is negligible compared with the wonderful glory of its autumn foliage, which displays all shades of scarlet, claret and orange, especially if the plants are growing in rather hungry, dry soil. Rich conditions at the roots tend to keep the leaves green until they fall.

Propagation may be effected by cuttings of the current year's wood, made in July and August, about four inches long, with a slight heel of older wood attached or severed at the junction of the current year's wood and that of the previous season. The cuttings should be inserted in pure sand in a frame having sufficient bottom heat to maintain a temperature of 65° to 70°. Layering suitable branches provides another method of increase.

R. Cotinus var. atropurpurea differs from the type in having all the young leaves and wood a good purple colour ; care should be taken when propagating to select the best-coloured form. The remarks on the propagation of R. cotinoides are equally applicable to this variety, except that R. Cotinus var. atropurpurea will be found easier to propagate. The type is particularly decorative in late summer on account of its flowers, while the foliage assumes a rich yellow colour before it falls.

R. trichocarpa is a native of Japan, and deserves to be much more widely grown, as it stands in the front rank among plants that give fine foliage effects in autumn. Unlike the two mentioned previously, R. trichocarpa belongs to the pinnate-leaved section, and while in its native state it grows into a small tree, in cultivation it forms a bush from four to six feet high. Contrary to the general belief that all pinnate-leaved Rhus must be propagated by root-cuttings this species may be readily propagated by cuttings made of the current year's wood with a slight heel of older wood attached, and inserted in the same way and at the same time as recommended for R. cotinoides. The cuttings will root in about a month, and therefore may be established in pots before the winter sets in ; they should be kept rather dry during the winter and planted out the following spring. It is advisable to have the hands and arms protected from the sap when making cuttings of this species.

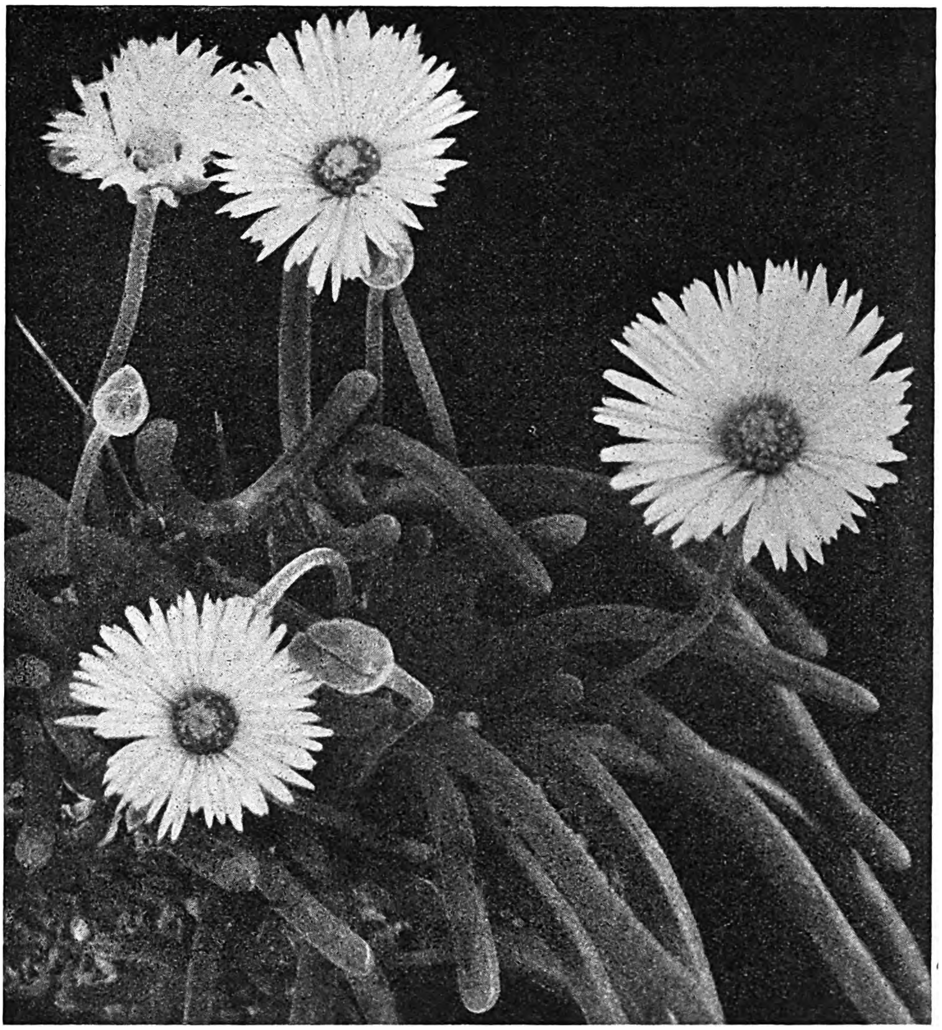
Rhus typhina is more generally seen in cultivation than the other kinds, as it will grow under the adverse conditions which prevail in and around large towns. The flowers and fruits of the female plant are quite decorative, but its chief value is derived from the foliage in autumn which takes on various shades of orange, red and purple.

Along with such subjects as Ailanthus glandulosa and Paulownia imperialis, it may be used as a foliage plant in summer, and for this purpose it is best planted in groups or in a bed, where it must be pruned hard back every spring just before growth commences. Only one or two shoots should be allowed to each plant, and the soil will need to be heavily manured. This treatment will result in an annual growth of five to six feet, with leaves from two to three feet long.

The variety laciniata is worth growing on account of its finely-cut foliage.

The best way to propagate this species would appear to be by using root cuttings, which may be inserted in very sandy soil in early spring.

Seeds of several species of Rhus are regularly offered by American and Japanese seedsmen and form a ready means of increase, but many of the kinds so offered are on the border line of hardiness, although R. glabra and var. laciniata and R. Osbeckii are well worth cultivating and will prove quite hardy in most places. *F. P. Knight, Codsall.*



[Photo by T. N. Leslie.

FIG. 13.—MONILARIA CHRYSOLEUCA.

In flower; petals white stamens rich yellow (see p. 34).

ROSE GARDEN.

ROSA RUGOSA VAR. REPENS.

A good many years ago, when visiting a beautiful garden formed by two keen lovers of flowers at Birkshaw, in Dumfriesshire, I was struck with the beauty of a prostrate form of the white form of Rosa rugosa hanging over a bank of what had been a gravel pit.

By the way, I revisited this garden some years afterwards. One of the garden-lovers, alas! has gone over to the majority, and the other had removed to another home. There was on my second visit to what had become a wilderness no sign of this white trailing Rose.

I have had similar plants in my garden and have given two plants of the white-flowered one a companion in the form of R. rugosa var. repens rosea, a still more charming plant with flowers of a pleasing rose. These plants are high up on a steep rock bank in front of my house, where they were planted in the autumn of 1927. They flowered last year but not profusely, and this summer have begun to bloom well and give evidence of a wealth of flower as the season advances. I believe these varieties originated in the nursery of Mr. T. Smith, at Newry. They do not appear to be well known even to the nursery trade, but are worth noting for planting in autumn. R. rugosa var. repens alba is very charming with its maltese-cross-like blooms, but R. r. var. rosea is even more attractive. *S. Arnott.*

ROSA MIRIFICA.

Those who take a delight in wild Roses and single Roses generally would be pleased with this wonderful wild Rose from the Western United States, and now flowering in Kew Gardens. The blooms are two inches across or more, and to all appearances are borne singly at the ends of the branches, produced during the second year. The leaves are light green, and made up of three to five leaflets, mostly three, the terminal one being obovate-cuneate, and simply toothed around the outer end ; the lateral ones are slightly asymmetrical, as if they intended to be lobed or divided into two, otherwise they are like the terminal one. All are so closely contiguous that they make the shortest Rose-leaf I have seen. The stems are hispid, with glands, while the flower stalk, calyx and fruit are thickly clothed with similarly stalked glands, mixed with aciculi or slender, needle-shaped prickles. The flowers at first are deep rose, fading to light rose and then pink, with a purple base to the petals. Altogether the make up of this Rose is quite distinct from any species I have seen in cultivation. *J. F.*

PLANTS NEW OR NOTEWORTHY.

CALCEOLARIA BENTHAMI.

THIS alpine, perennial species will probably prove one of the most useful of recent additions to the genus. During the Andean Expedition 1925-6 and 1926-7 seeds were collected from two localities; first, in the Valle Escondido, Palan Mahuida, where the plant was growing in sand, among rocks, exposed to full sun, at an elevation of 6,000 to 7,000 feet, and later, at Vega Lolog, Collunco, on grassy banks, and in shady copse in soil of a sandy nature. Although the conditions were different, the height of the stems was practically the same—a maximum of twelve inches.

Seeds were sent home, sown, and in due course flowered in small pots. But the value of C. Benthami was not discovered until it was planted out permanently in the open ground. A large number of plants was left out during the winter, both in the open field and on the rockery. In both cases no losses occurred, and the plants have increased considerably in size. As a matter of fact, the plant exhibited at a recent meeting of the R.H.S. (see p. 452, Vol. LXXXV), had spent fifteen months unprotected in the open field, and was only dug up a few days previous to being exhibited.

Under cultivation this Calceolaria forms neat clumps, and flowers profusely. A specimen I have just examined has forty-three stems and each stem carried on an average twenty flowers, making a good display which lasts for several weeks. In a moister situation, secondary growths might prolong the season. Propagation is easily effected by division or seeds. *J. Comber, Nymans Gardens.*

CIRCIUM OCCIDENTALE (NUTT.) VAR. COULTERI (JEPSON).

THE Thistle family—as grouped by the botanist—embraces a bewildering number of genera many of which have little resemblance to what ordinary mortals recognise as a Thistle. There are probably few races of mankind who are not acquainted with them in some form or other so that their very universality may well be accepted as an aid to faith in the Edenic story as to their being part of the punishment for our sins of disobedience.

There are species that are a plague to the farmer and a pest to the stock-breeder, but the gardener looks upon them from another point of view, and knows that among them are plants of good decorative value and well worthy of a place in the garden.

Our European types vary from dwarf alpines to stately and finely-proportioned plants of six feet in height, with a great diversity of foliage, and flowers ranging from pure white and yellow to all shades of pink, lilac and purple.

In California and the neighbouring states are several species of the genus Circium, which have rich scarlet flowers, and the introduction of these is much to be desired. From the description of those to be found in the various "Floras," C. arizonicus is, perhaps, the most brilliant, but until that species is introduced, we must be content with the plant under notice, C. occidentale var. Coulteri (see Fig. 11, p. 23), a most striking and decorative subject, growing five feet high, stout and straight, clothed throughout—leaves, stems and flower-heads—in soft, white, cottony wool, and producing its soft scarlet flowers from the axils of every leaf.

In its early stages the large, finely-cut, basal leaves are like silver, and the whole plant becomes only slightly less white when nearing its full height. No opportunity has yet occurred of using this species in the mass, and our first efforts ended in disaster. The seeds germinated very freely but the young seedlings all perished when transplanted. The difficulty in saving plants was overcome by sowing the comparatively large seeds singly in small pots. The best time to sow is in June or July, wintering the plants in a cold frame, as they resent heat and greenhouse treatment. When large enough they should be moved into five-inch pots and planted out in the early spring in their flowering quarters.

Much has been written in the more popular books on the American wild flowers about these scarlet Thistles, but from none can it be learned whether this plant is perennial or not. It has all the appearance of being only of biennial duration. A friend who recently returned from a visit to America, and whose opinion I value, told me he considers this the most desirable novelty seen in the United States, and it may easily be imagined that a large group would be very telling.

Circium occidentale var. Coulteri is found near Los Angeles and on all the coastal mountain ranges at from 2,000 to 8,000 elevation. It has been introduced into American gardens and seeds are obtainable from Mr. Theodore Payne, the well-known seedsman and nurseryman of Los Angeles city.

ALPINE GARDEN.

DIANTHUS SYLVESTRIS.

AMONG the many beautiful, dwarf alpine Pinks which brighten our rock gardens during the month of June, few are more beautiful than Dianthus sylvestris, which, according to the late Reginald Farrer (*The English Rock Garden*) should be D. inodorus—apparently a name given by Linnaeus prior to that of D. sylvestris, although the latter is retained in the Kew *Hand List of Rock Garden Plants*.

However, I have no desire to enter into a discussion on nomenclature, but wish merely to extol the beauty of this lovely denizen of the Alps, which is quite easy to cultivate, and will flourish in the humblest rock garden if planted in a warm, sunny and well-drained position, in light soil containing plenty of chips and small stones, and will there form a dense cushion of slender, bright green, not glaucous, leaves. If the plants are raised from seeds the flowers will vary somewhat, therefore care should be taken to secure a good form, with vivid, rich rose-pink blooms, slightly paler at the centre, one or two flowers usually being borne at the ends of wiry, spreading stems four or five inches in length; these flowers are usually produced quite freely, so that a patch of two or six good plants of this Dianthus will form a landmark in the rock garden at the present season.

There is a pure white form of D. sylvestris, although I do not know whether it is at present in cultivation, but variety frigidus is the best form in cultivation, being of even denser and more compact habit than the type, and more ample in its blossom—a real gem, deserving of a very choice position.—*Kent.*

MECONOPSIS BETONICIFOLIA VAR. BAILEYI.

MR. EDWARDS, in his notes (*Gard. Chron.*, June 22, 1929, p. 473), mentions Meconopsis betonicifolia var. Baileyi as having been a great source of attraction at Kew. This will, I suppose, be the Blue Poppy known to most gardeners and listed in seed catalogues as M. Baileyi. It is not included in the masterly summary of the genus (thirty-three species or thereabouts) in *The English Rock Garden*, it is, however, generally supposed to have been discovered some few miles from Gangtok in the Tibetan Alps, by Major Bailey, about sixteen years ago. Little more was heard of it until Mr. F. Kingdon Ward sent home seeds of it in 1924.

Many may remember it as first exhibited at one of the R.H.S. meetings in April, 1926. Now it is fairly common, and a few weeks ago an extensive colony in full bloom attracted considerable attention, flowering in the mass, in the rock garden on the site of the old mansion-house of Ibroxhill, now one of Glasgow's public parks.

This Asiatic Poppy is, perhaps, the most accommodating member of a genus which has the reputation of being somewhat impatient of the cultural methods practised in the majority of British gardens. Climatic conditions here, scarcely approximate to those which obtain in the native home of the genus, and have probably more to do with success or failure than many cultivators would admit. Although usually classed as perennials, Meconopsis are best treated as biennials, and a stock of plants should be raised from seeds each season. They require considerable root room, and for their maximum development require a well-worked, gritty soil, with a minimum depth of from two feet to a yard, to supply nourishment and give anchorage to the long, thong-like, fleshy roots. *Jonathan Fiona.*

HARDY FLOWER BORDER.

PULMONARIA AFFINIS.

FOR many years I have been puzzled with a Pulmonaria grown in gardens and appearing under such names as P. sibirica, and P. saccharata, although the plants appearing under them were very dissimilar. The correct name is that forming the heading of this note. The plant is a strong grower, flowering in April and May on stems eight to twenty inches high. The flowers are large for the genus, red at first and then bluish violet. After flowering, the radical leaves grow to great size and beauty. They are oval, narrowed to a long point, suddenly contracted into the petiole, twice as long as broad, and dark green above, marbled with large white blotches.

The species is widely distributed in the centre, east, west and south of France, in woods, meadows, and humid bushy places. It also occurs in Spain and Italy, as well as sub-spontaneous in other countries. *J. F.*

PERENNIAL SPECIES OF LATHYRUS.

To the species mentioned by J. Comber, on p. 366, Vol. LXXXV, I would add Lathyrus tuberosus, the Tuberous or Fyfield Pea. This plant appears to have been introduced into Britain by the Dutch in the sixteenth century, possibly because its tubers are edible. It is found growing commonly about Fyfield, in Essex, and also in Canvey Island, and some half-a-dozen other localities in different counties. Its flowers are very similar to those of L. sylvestris, but smaller and fragrant. Like that species, it is a climber and will reach a height of six feet. In my garden at Hale End it grew well on a chalky bank and also on the rockery, trained up supports of cane and wire, but it is not to be recommended for rockeries on account of its running underground stolons, which, although not aggressive, form tubers at distances of a foot or more from the parent and so are liable to overrun a good area in ten years or so. It is, however, so dainty and attractive a plant when well-grown and flowering freely from June to August, that it is worth trying from seeds.

Another wild species is L. niger (Orobus niger), the Black Bitter Vetch, found occasionally in rocky woods in Scotland. This is not so striking a plant as most of the others, but it is of interest for its purple flowers which turn blue as they fade, and the long black pods, and also because it will be quite happy and flower well in shady places and under trees. It grows to a height of two feet and, although not a climber, it needs a little support. *C. Nicholson, Nansgwithick, Tresillian, Cornwall.*

BULB GARDEN.

ALLIUM SCHUBERTI.

LAST winter I had a sheet of a dried specimen of Allium that had been lying about waiting for a name for twenty years or more. One referee had determined it to be A. Porrum, but I soon referred it to A. Schuberti, which is a native of Syria, including Palestine, for the specimen had been gathered at the Waters of Merom. A specimen in the Kew Herbarium had come from the same place.

The flowers are of a dull purple in colour, and not particularly showy. The plant is remarkable for flowering first on short stalks, and when these are in the fruiting stage, others are in full bloom on peduncles six to eight inches in length, giving the umbel some semblance to a porcupine. Many of the flowers have to be cut away to enable the head to be placed on a herbarium sheet. It was in cultivation at Kew prior to 1902 and was figured in the *Botanical Magazine*, tt. 7,587–8. Live specimens were recently shown by Mr. Amos Perry. *J. F.*

ALLIUM TRIQUETRUM.

To most of us, I think, the odour of the majority of the Allium species is so objectionable that they require to possess a considerable degree of floral charm to ensure their cultivation. This a considerable number of the species do possess and, if proof were needed for those who do not know the genus well, the authority of the late Reginald Farrer may be cited, as he devotes rather more than three pages of his *English Rock Garden*, to a consideration and running commentary upon the Alliums. I am glad to observe that he wrote very favourably of one which has been grown by me for many years, but which does not as yet appear to be represented in many gardens, and that is, A. triquetrum.

It is a capital subject for shrubberies and for naturalising in grass, and may even be utilised in corners of the rock garden, where its seedlings cannot harm choice subjects. Farrer stated that it is "a plant of great attraction," with its triangular stalks and heads of clear white flowers which droop gracefully from these stems. Incidentally, it may be mentioned that these triangular stems, which attain a foot in height, serve the purpose of depositing the seeds away from the parent, as they fall over and the heads, with the precious seeds, lie about a foot or so from the parent.

This species comes from Spain, where it inhabits shady banks and moist places, but it will grow almost anywhere. Its odour is only apparent when the plant is touched or bruised. It flowers in June, and should be planted two inches deep in good loam. *S. Arnott.*

NOTICES OF BOOKS.

American Rock Gardens.

THIS little book* is intended to give the novice who knows nothing of the subject a first lesson in the making of a rock garden and the growing of rock plants. That the author, who holds important horticultural positions at Harvard University, has achieved his object, will be conceded by those who realise that the public he is addressing is American, a country in which the rock garden is still in the germinating stage. To English readers the book offers little that is new or helpful. At the same time, the general principles of rock garden construction (these being adapted from the works of M. Correvon and Mr. William Robinson) are still so little comprehended by many of our amateurs that Mr. Hamblin's pages might be read by some of them with profit.

A rock garden in New England does not seem to be a very happy possession if one can judge by this author's personal worries. He tells us it demands more upkeep "than any other kind of ornamental garden." To him a rock plant is, until well established, "a sick child, and a rock garden an orphanage with all the children ill." He admits having had more failures than successes in his own garden, and in words that would adorn an epitaph, he mourns in "sadness of heart . . . the long list of plants gone back to their native happy country." If all this, and there is a deal more, were a general experience, it might help to explain why Americans have avoided such gloomy companionship as a rock garden offers. But we know that it is just the contrary, that even in New England this branch of gardening offers amenities comparable with any other.

Much of Mr. Hamblin's advice on the care of alpines is sound and practical, but like most American gardeners, he manages to put in more fussing over the question of lime versus acidity than we consider essential. He very rightly advocates a wider use of native American plants, but his lists of these, admittedly incomplete, suggest that the alpine flora of the New World is, even with him, still a long way off its due recognition. He regrets that "there are far too few small shrubs in nature, and most of these have little value as rock shrubs." Most of us have found the boot on the other foot, the difficulty being not the shortage of material, but to provide accommodation for the multitude of claimants, and one wonders what Professor Sargent and Mr. E. H. Wilson, both associated with Harvard, would say of such an amazing statement! It is obvious that this author and, one may presume, the general run of New England rock gardeners, have yet to realise the existence of the dwarf Rhododendrons, to mention but one genera rich in rock shrubs. But while America's own dwarf Rhododendrons, Kalmias and several other important groups are not even mentioned in these pages, it is, perhaps, too much to expect this author to allude to plants of more recent discovery.

One notes, however, the saving grace of modesty and sincerity in Mr. Hamblin's pages. Even if the prospects he offers those who attempt alpines are anything but cheerful, most of his readers who do not aspire to "operate" a "high-power rock garden" will gather some useful hints from his chapters. The reproductions are deplorable, and a poor compliment to Mr. Washington, who provided most of the subjects. *J.*

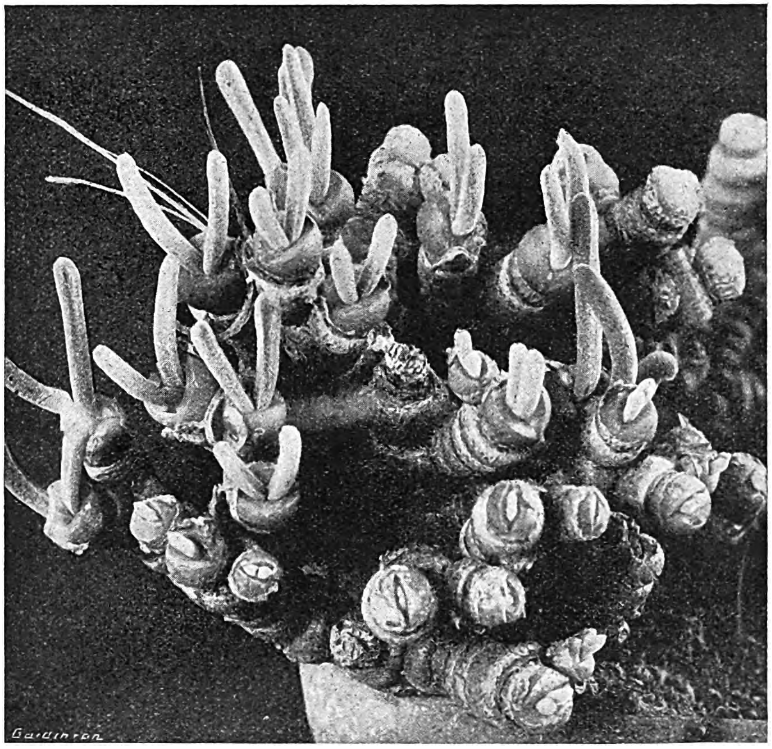


FIG. 14.—MONILARIA MONILIFORMIS.
A plant just commencing to grow natural size. (see p. 33).

Garden Lilies.

DURING the past ten years more books on Lilies have been published in North America than have appeared in Britain during the present century, and if none of them adds anything to our knowledge of the genus, they show that, although gardeners in the United States and Canada have been a little slow to appreciate the interest and pleasure inseparable from the cultivation of Lilies, they are rapidly making up for lost time.

Miss Isabella Preston has written a readable little book on Lilies*, and in its compilation has drawn on her experience of them as a member of the horticultural staff of the Government Central Experimental Farm at Ottawa. Where her brief experience and the limitations imposed on Lily growers by the natural conditions prevailing at Ottawa do not permit her to write from first-hand knowledge on any particular point, the authoress wisely draws on recognised sources which will be familiar to those of our readers who are interested in Lilies.

In common with most works of the kind, which have been published in North America, Miss Preston's book is intended for Canadian and American readers, for the climate and general conditions prevailing in Canada are as unlike those of Britain as is possible. For that reason, English readers will not turn to the book for help in the management of Lilies, but, none the less, they will be interested in the behaviour of familiar species in Canada. Our native L. Martagon, for instance, although of strong constitution, has proved difficult to establish in Ottawa, yet L. monadelphum, another European species, has shown itself complaisant there. On the other hand, L. regale and L. speciosum flourish, although, as is the case here, the flowers of the latter are liable to be spoiled by autumn frosts. L. auratum does not appear to grow readily at Ottawa.

Miss Preston has had some experience in the raising of hybrid Lilies, but a perusal of her book does little to remove the impression that neither the genus itself, nor gardeners in general, have benefited by the efforts of hybridisers. It may still be stated with truth, as was written twenty years ago, that of all the hybrid Lilies which have been produced by human aid, only one—L. Parkmanni—is an improvement on either of its parents, and like most hybrid Lilies, that has a poor constitution.

In one or two technical points there is room for expansion in a future edition of Miss Preston's useful book. For example, the object of potting up imported Lily bulbs on their arrival is not solely so that any which develop disease may be destroyed, but because potting usually induces a quick and satisfactory root-action. Again, L. monadelphum should be added to the list of the species which should be planted in early autumn.

The book is well illustrated with photographs of species and hybrids, is well printed, and slips conveniently into the jacket pocket

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* *American Rock Gardens*, by Stephen F. Hamblin. Orange Judd Publishing Co., New York; Kegan, Paul, Trench, Trubner and Co., Ltd., London; 1929. Price $1.25.

* *Garden Lilies*, by Isabella Preston. Orange Judd Publishing Co., New York; Kegan Paul, Trench, Trubner and Co., Ltd. London. Price $1.25.

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PROBLEMS OF PLANT LIFE[*]

III.—Studies in Fertilisation.

ALTHOUGH vague ideas respecting the fertilisation of plants have existed for ages it is easy to see that until the discovery of the cell such a subject must have been extremely problematical. Much misunderstanding arose respecting the function of pollen, but when the microscope came into use, and thin sections of stigmas and ovaries could be made with the microtome, it was possible to trace the whole process in detail. A pollen grain reached the viscid stigma, threw out a tube which penetrated the cells and reached the ovule, and so secured to the female element the essential for reproduction.

Perhaps the earliest observations on the subject of fertilisation were those which the Arabs and neighbouring races made on the Date Palm. So long ago as 1694, Dr. Cammerer or Camerarius, following a custom which was then in vogue, published an essay bearing the title *A Letter on the Sex of Plants*, in which he recapitulated what the ancient authorities had stated respecting the parts of flowers, and the reproduction of plants. He arrived at the conclusion that the pollen represented the male element, and the ovary the female, proving his contention by cultivating both monoecious and dioecious plants, and showing that if the pollen-bearing flowers are picked off in time to prevent fertilisation no fruit will be formed, while, conversely, if the part bearing the ovary is allowed to have pollen it becomes fertile. This practical result was accompanied by a discussion of a number of theories on the sexes of plants and fertilisation in general, and Linnaeus was not slow to acknowledge that he had rendered a useful service to the study of plant problems.

From the time of Camerarius things began to assume a more strictly scientific aspect, so that we may regard the opening years of the 18th century as the period in which true ideas of plant-fertilisation began to take shape. It was not, however, until the middle of the century that an experimenter arose who gave himself up to the cultivation of plants in order to demonstrate the methods of fertilisation. And even Kölreuter (1733–1806) adopted certain views which now appear fantastic. Using the microscope for the examination of pollen grains he came to the conclusion that the fertilising property is due to an oily fluid which the pollen secretes. On the stigma of the pistil he found a similar fluid, and concluded therefrom that fertilisation consisted in a union of these fluids, just as an acid and a base form a salt."

Although he showed by these suggestions that he had not solved the mystery, Kölreuter nevertheless rendered good service by investigating the means by which pollen is transmitted. He knew that while the wind acted as the carrying agent in the case of those plants which are provided with catkins certain other flowers are invariably fertilised by insects. In particular he experimented on hybridisation, a problem which eventually claimed the whole of his attention. Among the plants which he used in these researches were various forms of Tobacco; Columbines, Mulleins, Pinks and other plants were also used, and although his observations were not always correctly interpreted, and his methods were not invariably such as would be employed to-day, by crossing the hybrids which he had produced he arrived at results which were a kind of foreshadowing of those which rendered the name of Mendel so noteworthy a century later. In one respect both these distinguished men shared a like fate. Their work was overlooked and neglected, and not until long after their death were their names rescued from oblivion.

Meanwhile, another botanist who was destined to win fame in connection with fertilisation problems was coming to the fore. This was Conrad Sprengel. He was born in 1750, and at the age of forty-three brought out (in the year 1793) a work which embodied a large series of observations on flowers. On these observations he based a general theory of fertilisation which largely holds good to-day. He noted the fact that the nectaries of flowers are usually carefully guarded against injury from rain. Observing that, while wind-fertilised flowers were usually inconspicuous, others had a variety of colours, he concluded that brilliancy was intended to attract insects. But this carried with it the further argument that insects must have some purpose in view. They were found to be pollen carriers, and it was clear either that the pollen served some useful end either to themselves or the flowers, or else that they accidentally carried the pollen while in search of nectar. Thus he was led to study in detail the mutual relations between insects and flowers. He found that certain blossoms were capable of being visited only by special forms of insect life, and discovered that in some plants the pistil and the stamens fail to ripen at the same time, thus rendering it impossible for them to be self-fertilised. This led him to the conclusion which he expressed in the formula—Nature does not appear to desire that a flower be fertilised by its own pollen.

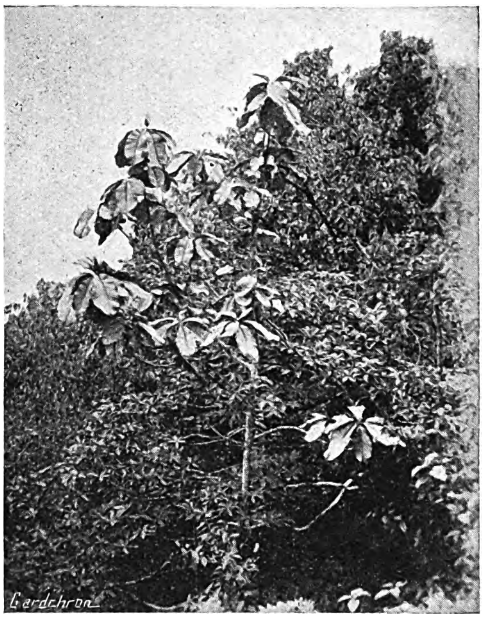

FIG. 15.—MAGNOLIA ROSTRATA IN BUD.

It is easy to see from the foregoing how the way was gradually being prepared for the advent of Darwin, who succeeded in rescuing Sprengel from the oblivion which at one time seemed to threaten him. And here we revert to our last paper dealing with the mystery of the cell. A striking phrase occurs in a recent work on biology[*] which deserves to be quoted in this connection. "Undoubtedly", states the author, "the greatest service to biology that has been performed by modern cell-research is its having given us our present knowledge of the course and significance of fertilisation." By the discovery of the cell the way was made clear for the study of the ovule, and when this important part of the plant had been laid bare it was possible to show the direct relationship which existed between it and the pollen grain. It is interesting to note, however, that the study of animal fertilisation went hand in hand with that of plants, each throwing light upon the other. Just as the botanist saw the pollen tube penetrating the style and working its way to the ovule, so the zoologist saw the spermatozoon penetrating the egg. The first to actually see this, so far as authentic records go, was Hermann Fol, of Geneva, so recently as 1879. When we consider what rapid strides have been made during recent years in biological research it seems almost incredible that during the life-time of many of our readers these startling facts should have been unknown. What, to-day, is a common-place, was still a mystery or something to be accepted with caution and suspicion half-a-century ago.

Into the later history of this branch of research into the problems of plant fertilisation it is not necessary to enter, since it is known to every student of botany. It is interesting, however, to learn something of the weary processes, the patient toil, the speculations, theories and hypotheses by which the way has been opened for a Darwin, a Lubbock and others to tell us the wonderful story of the fertilisation of plants. *Hilderic Friend.*

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.[†]

XXV.—Three Epiphytic Rhododendrons.

That some species of Rhododendron are habitually epiphytic has long been known. Sir Joseph Hooker, more than seventy-five years ago, wrote that "much undue importance has been given to the fact of some kinds growing habitually epiphytically (R. Dalhousiae, R. camelliaeflorum, R. pendulum), and it has been supposed that much difficulty must attend their cultivation."[‡] And he goes on to mention that he had seen all these species growing on rocks, and that wherever paths are cut through the forest, seedling Rhododendrons, epiphytic and not, may be found in hundreds springing up on the banks—a fact to which every botanist who has travelled on the Burma or Assam frontiers can testify. Hooker pointed out that the reason why these species have taken to the tree-tops is doubtless owing to the lack of light below; the more vigorous undergrowth gives them no chance. Given favourable conditions and a fair field, they will grow on the ground, and such species as R. pendulum even, whose very name suggests "epiphytism de luxe," may then grow erect.

All this may be true, but it is by this very means, so we have always been taught, that *all* epiphytism has been brought about, including that of the Orchid family. Any number of epiphytic Orchids may, under certain conditions, be found growing on rocks. No doubt epiphytism has been carried to greater lengths in the Orchid family than in the Ericaceae, and there may be lots of Orchids which grow only as epiphytes—if only because in the low, damp, swampy forests where they are found, there are no rocks for them to grow on. Species of Aeschynanthus, too, which are ordinarily epiphytic, are just as happy on rocks. Even in England one may see the same process at work; in a damp, dark Devon glen, the Hart's-tongue Fern, which here normally grows on the ground, or on rocks, may be found growing on trees. In short, epiphytism has no creed of its own; it is simply a means to an end.

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[*] Previous studies appeared in our issues of April 13 (p. 279–80) and June 15 (p. 440–7), Vol. LXXXV.

[*] *The History of Biology*, by Erik Nordenskiöld.

[†] Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, 1929.

[‡] *Journal* of the Royal Horticultural Society of London, 1852.

Epiphytic Orchids, as usually grown at home, are not grown on trees; but they *are* grown under glass. Whether growers find more or less difficulty with the epiphytic species, as compared with ground Orchids, is beside the point; and, of course, with cultivated Orchids it is the epiphytic habit which is normal, whereas with Rhododendrons it is the terrestrial habit which is normal. But it makes no difference, the principle is the same. And the point is this. The difficulty to be faced in the cultivation of epiphytic Rhododendrons is not that they *do* normally grow as epiphytes, but that they *can* do so. In other words, the difficulty is not to reproduce suitable soil conditions, but to reproduce a suitable atmosphere. One has merely to glance at the region in which epiphytic Rhododendrons are most commonly met with—the temperate rain forest of the monsoon countries, between 6,000 and 10,000 feet altitude—to realise the truth of this. Such atmospheric conditions—perpetual saturation during the summer is one of them—can rarely be even approximately met at home.

If, then, Hooker intended to convey the impression that his epiphytic species R. Dalhousiae and the others, could be cultivated in the open as easily as R. arboreum, R. Falconeri, and the rest, he was clearly wrong. So far as I know, there is not a garden in Britain where R. Dalhousiae or R. camelliaeflorum grows in the open; but if there is such a favoured spot in Cornwall, or in Ireland, or on the west coast of Scotland, there are, at any rate, far more gardens where Rhododendrons are well grown, but, which are out of the running so far as most of the epiphytic species are concerned. But if Hooker simply meant that, given adequate protection, the epiphytic species could be grown just like any other species, of course, he was right.

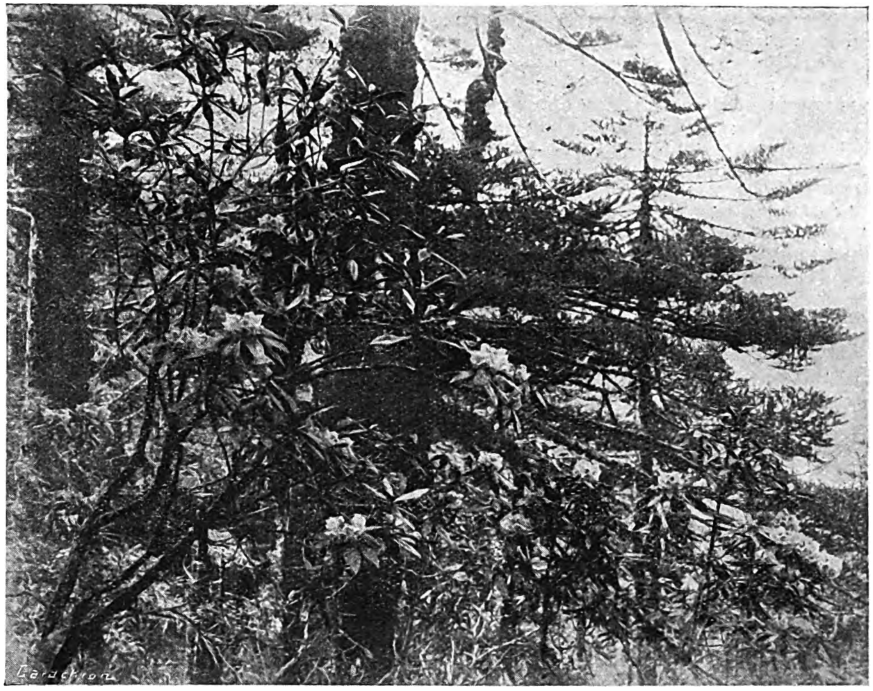


FIG. 17.—RHODODENDRON-CONIFER FOREST.
A 'barbatum' Rhododendron in bloom; alt. 10,000 feet.

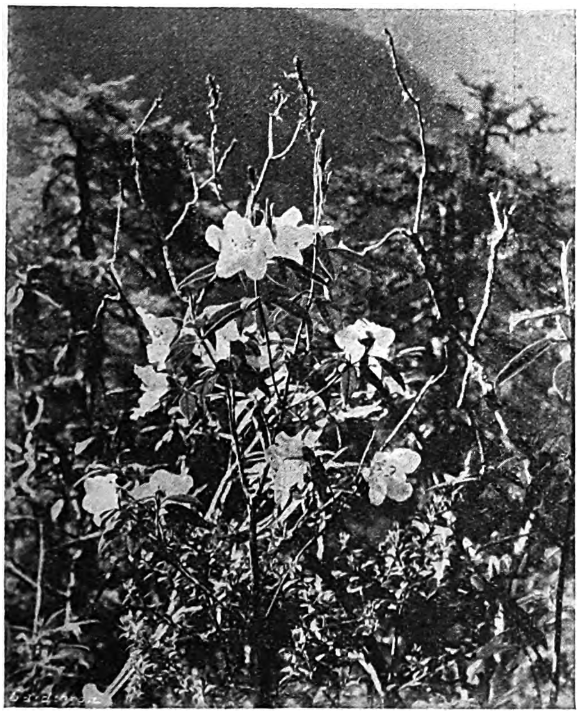


FIG. 16.—A FRAGRANT EPIPHYTIC RHODODENDRON.

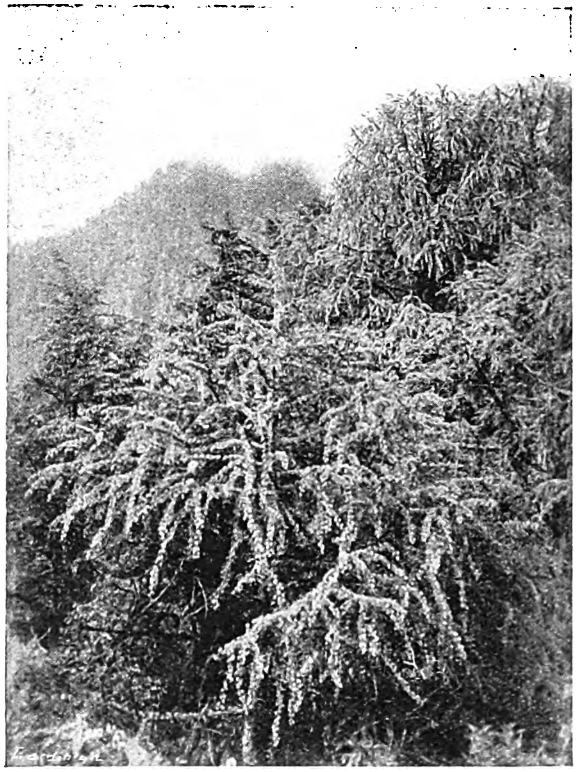


FIG. 18.—LARIX GRIFFITHII.

However, there are certain species which have become much more closely adapted to an epiphytic existence than those mentioned above. Rhododendron vaccinioides and its allies, for example, are epiphytes first and last. The tiny, Box-like leaves, recalling those of certain Gaultherias, and the extraordinary, tailed seeds, seem to be especially designed for an epiphytic existence. True, I have once found R. vaccinioides growing on a rock, and it is not uncommonly met with on fallen logs; but that does not vitiate the inference that it is a true epiphyte. Most of the epiphytic Rhododendrons, however, are almost equally at home on cliffs; and in the forests where they grow, suitable cliffs are common enough.

In the Delei valley I found seven species which grew either habitually or alternatively as epiphytes. One of the best was R. dendricola, which has been referred to in a previous article. When first discovered on the Burma frontier in 1914, it was described as growing on the tops of lofty trees, but since then I have repeatedly met with it growing on rocks, or on an open ridge. Nevertheless, its proper place is undoubtedly up in the tree-tops, where alone it does itself full justice. R. dendricola may be found so low down as 4,000 feet, and so high as 7,000 feet. The flowers are snow-white, with or without a yellow streak on the upper lobe, or occasionally flushed rose, very constantly in trusses of four (never more) and fragrant. In the Delei valley, R. dendricola flowered as early as the first week in April, but in the Seinghku valley it was in flower so late as the middle of May. It is a gracious plant, and the only difficulty likely to attend its cultivation is the fact that it will have to be grown under glass.

Rhododendron vaccinioides was not rare in the Delei valley, although I did not see it in flower. Nor is it worth growing. In the Seinghku valley grew not only R. vaccinioides, but two other species of the same series, one of which, with bright orange flowers, was quite attractive.

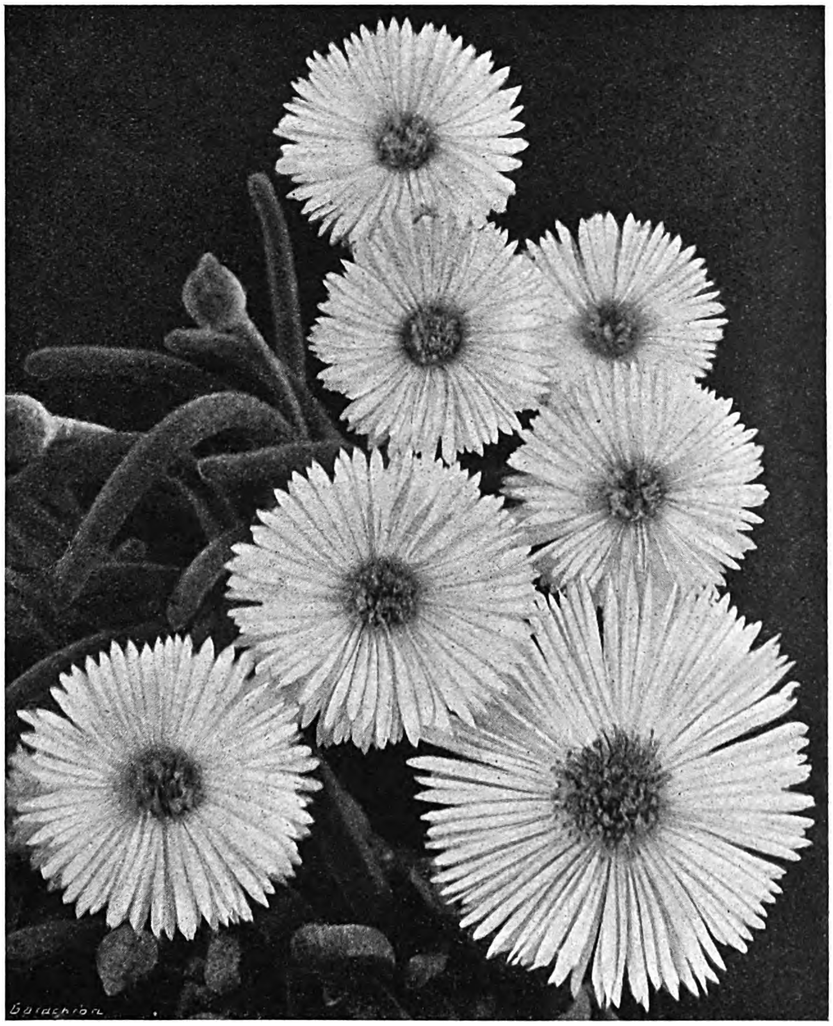


FIG. 19.—MONILARIA MONILIFORMIS.
Plant in flower; petals white and stamens yellow.

Much commoner was a straggly little epiphyte which flowers in the autumn and was almost in ripe fruit when I first met it on May 5. It had small, densely lepidote leaves, and flowers in heads of two or three. This also was a genuine epiphyte, although found so high as 10,000 feet; it belongs to the 'Maddeni' series, and has pink flowers. The fine, crocus-yellow 'Boothii' species described already was often met with as an epiphyte, although I first found it on rocks, where, indeed, it was infinitely more accessible.

Another common epiphyte opened its little jaundiced flowers in mid-June. It was quite one of the most miserable and, indeed, revolting Rhododendrons I have ever seen; sallow corolla, the lobes turned back to make it look even smaller than it was already, and dirty orange blobs—not just spots, but insanitary blisters—on the upper lobe. I collected seeds of this eye-sore in Burma in 1926, if not in Tibet in 1924, and plead not guilty; I had not seen it in flower. The foliage does nothing to correct the bad impression made by the flowers, until the autumn, when suddenly the previous year's leaves turn bright scarlet, almost redeeming the plant. There were two really delightful epiphytic species in the Delei valley, both of which, however, I had already met with and collected in the Seinghku valley, a yellow-flowered 'Boothii' and a white-flowered 'Edgeworthii'. The former flowered first in mid-May, and lasted until the middle of June at 11,000 feet or thereabouts. It is a bushy undershrub with yellow flowers, not particularly bright, and orange-brown anthers. The charm of the plant, however, lies in the foliage, the neat little leaves being dark green above and glaucous beneath, with scattered golden scales which glisten like flecks of mica. The neat, compact habit, without any loose ends, and the sharp contrast between the flowers—borne in no niggardly fashion—and the leaves, mark this out as a plant of distinction. It is just as much at home on the gneiss or granite cliffs, as on the Fir trees, Junipers and Larch. It forms its bulkiest bunches, perhaps, on the cliff faces, which catch a cascade of water from above, preferring the concrete water-laid-on shower bath to the vague abstractions of a saturated atmosphere. At first sight, this species might easily be mistaken for R. megeratum, the yellow flowers in their happy setting of electroplated leaves with bristly margins and petioles, reminding one of that plant. But it differs in one important respect; R. megeratum has solitary flowers, while in this plant they are nearly always in pairs. A minor distinction is that the capsule of this plant projects beyond the calyx, instead of being completely enclosed by it.

The 'Edgeworthii' did not flower until June—except at its lowest limit, where it flowered in the last week of May. Like the last, it grows on rocks as well as on trees, but its favourite haunt is certainly high up on some old dismasted Larch or Juniper, or Tsuga; across the glen you may see it swelling like a white cloud puff from some moss-bound tree stump, or clinging to the face of the cliff. The flowers are white, with a yellow spot near the base, irregularly banded and suffused with rose-purple on the reverse, often borne singly, usually in pairs, very rarely in threes; they are large, and bewitchingly fragrant. This delightful plant, which was very common on the ridge of Kaso, is easily distinguished from the other 'Edgeworthii' (already referred to as R. bullatum) by its much larger flowers, smaller leaves less woolly beneath, and calyx lepidote as well as hairy. The June rain played havoc with this fine plant, and its ruined corollas were strewn all along the track; but while it lasted it lit up the forest, and scented it, too.

These three true epiphytes, R. dendricola, the small-leafed 'Boothii,' and the 'Edgeworthii'—to say nothing of the "Crocus" 'Boothii'—are worth growing; but it is all Lombard Street to a China Orange that they will require protection. *F. Kingdon Ward.*

MESEMDRYANTHEMUM.

(*Continued from p. 84, Vol. LXXXV*).

MONILARIA, Schwant.

Dwarf, bushy, succulent plants, two to four inches high, with crowded, erect, stout branches, constricted at the nodes into short and often bead- or button-like joints. Leaves opposite, of two kinds, and only one pair of each kind produced annually; the first pair to appear when growth commences are rudimentary and sometimes scarcely more than a short, fleshy sheath, with its semi-circular lips closed together into a bag-like or globular body, but by the growth of the second pair of leaves the lips are pushed apart and remain surrounding the base of the joint formed by the second pair, which are long and nearly cylindrical, but more or less flattened on the upper side, and very shortly united at the base, papulose. Flowers solitary, terminal; pedicels long, papillate, with a pair of rudimentary leaves sheathing the base. Calyx papulose or papillate, unequally 5-lobed down to its union with the ovary, with the ovary-part shallow and convex beneath. Petals numerous, free, in 3–4 series, linear. Stamens numerous, erect in a column, or later becoming more or less loose; filaments not bearded at the base. Stigmas 5–7, stoutly ovoid-subulate, acute. Ovary inferior, shallow, 5–7-celled, with 5–7 sutural ridges on the flat top; placentas on the floor or outer wall of the cells. Capsule shallow, very shortly and broadly obconic, with 5–7 very prominent and thin sutural ridges on the flat top, and 5–7 valves and cells; valves reflexed or widely spreading; expanding keels more or less widely diverging, broad and flattish at the basal part, with the inner edges raised, and with narrow marginal wings; cells shallow, somewhat acutely roofed with membranous cell-wings; no placental tubercle. Seeds numerous in each cell, ovoid, pointed at one end, smooth.—Schwantes in *Gartenwelt*, 1929, p. 69.

Species 3; natives of Little Namaqualand and Van Rhynsdorp Division of South Africa; the type of the genus is M. moniliformis.

The name is derived from the Latin, *monile*, a necklace, in allusion to the manner in which the stems are constricted into bead-like joints.

The remarkable group of plants comprising this genus is among those I intimated in *The Gardeners' Chronicle*, 1925, Vol. LXXVIII, p. 412, that would probably have to be separated generically from Mesembryanthemum when better known. But as at that time I had not seen flowers or fruits of any species belonging to the group, I was unable to assign characters whereby to separate it; and previously I had associated the species with those now placed under the genus Mitrophyllum, in which I was at first followed by Schwantes, who enumerates the species under a section of that genus, but without a word of description by which it could be identified. Recently, however, he has separated it as a distinct genus, in which opinion I agree with him, for having been able during the past four years to study living plants in the adult and seedling stages of Monilaria and Mitrophyllum, I find they differ so conspicuously in vegetative characters, long pedicels, stout stigmas, and slightly in fruit, that I no longer hesitate to consider them as distinct genera, especially as Monilaria is easily distinguished from all its allies by the stems and leaves alone.

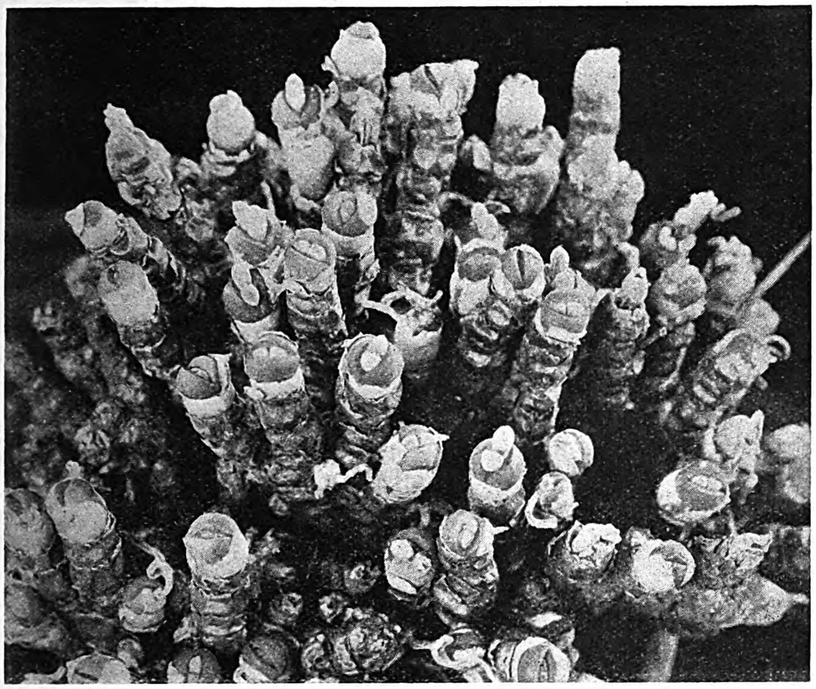


FIG. 20.—MONILARIA PISIFORMIS.
Plant at rest, natural size.

From Mitrophyllum it differs in its peculiar mode of growth, as follows :—The first of the two annual pairs of leaves is rudimentary, consisting of a pair of very short, fleshy, hemispherical lobes united at their base and at first closed together into a small hemispherical body (see Fig. 14, p. 29 of M. moniliformis commencing to vegetate), which become separated as the second pair of leaves develop. This second pair are long and sub-terete, and are but very shortly united into a sheath at the base above the short, bead-like internode from which they arise. This short sheath ultimately either decays or hardens into a short, free, cup-like, dark brown sheath terminating the internode and enclosing the next pair of rudimentary leaves, which ultimately disappear and leave the sheath surrounding the base of the internode above it, as is well seen in the stems of M. pisiformis and M. chrysoleuca. In Mitrophyllum the first pair of leaves are long, not sub-terete, and free except at the very base ; and the second pair are united into a long cone with free, leafy tips or short, blunt points.

The following are the first complete and illustrated descriptions of these very curious and interesting plants that have ever been published.

Key to the Species.

1. Joints of the stem twice or more than twice as thick as long, button-like or depressed-globose, not produced above into a short sheath, greyish ; petals white ; filaments and anthers yellow.
M. moniliformis.

2. Joints of the stem usually (but not always) as long as or longer than thick, more or less bead-like, produced above into a short sheath enclosing the base of the joint above it, smooth and hard, dark brown.
Joints of the stem ellipsoid or sub-globose ; petals stated to be yellow at the tips, then white, and pink at the base ; stamens with red filaments and yellow anthers.
M. pisiforme.

3. Joints of the stem somewhat compressed and obscurely 4-angled ; petals white ; filaments and anthers deep yellow.
M. chrysoleuca.

M. moniliformis, Schwant. in *Gartenwelt*, 1929, 69.—Plant much branched, 2–4 inches high when at rest ; branches erect, often crowded, 5-7 lines thick, constricted at the nodes, with short, depressed-globose or button-like joints, 1½–3½ lines long, greyish. Primary leaves 1½–2½ lines long, 4–6 lines broad and 2–3 lines thick, semi-circular in outline, with a minute point at the rounded apex, flat above, convex beneath, smooth, glabrous, not papulose, green. The second pair of leaves 2–3½ inches long, 2–2½ lines thick, slightly flattened on the upper side, very rounded on the back or sub-terete, obtuse, densely covered with minute, glittering papulae, somewhat bluish-green. Pedicels 2½–3 inches long, coarsely papillate. Calyx flattened at the base, coarsely papillate ; lobes 4–8 lines long, the outer 2½–3 lines broad, ovate, with leafy tips, the inner 3½–4½ lines broad, elliptic, with broad, membranous margins. Corolla 1½–2½ inches in diameter, opening between 11 and 12 a.m. and closing between 2 and 3 p.m. ; petals in about 3 series, 6–9 lines long, ½–1 line broad, linear, obtuse and more or less notched at the apex, pure white, shining. Stamens about 2 lines long, at first in a column, afterwards loosely separating ; filaments and anthers deep yellow. Stigmas 5, about 1 line long, stout, ovoid-subulate, acute, erect or ascending, yellowish. Ovary with 5 wing-like sutural ridges on the flat top, green. Capsule when closed about 7 lines in diameter and when expanded 10–11 lines in diameter, inner edges of the expanding-keels fringed with fine teeth. Seeds nearly ½-line long, pale brown with a darker brown point.

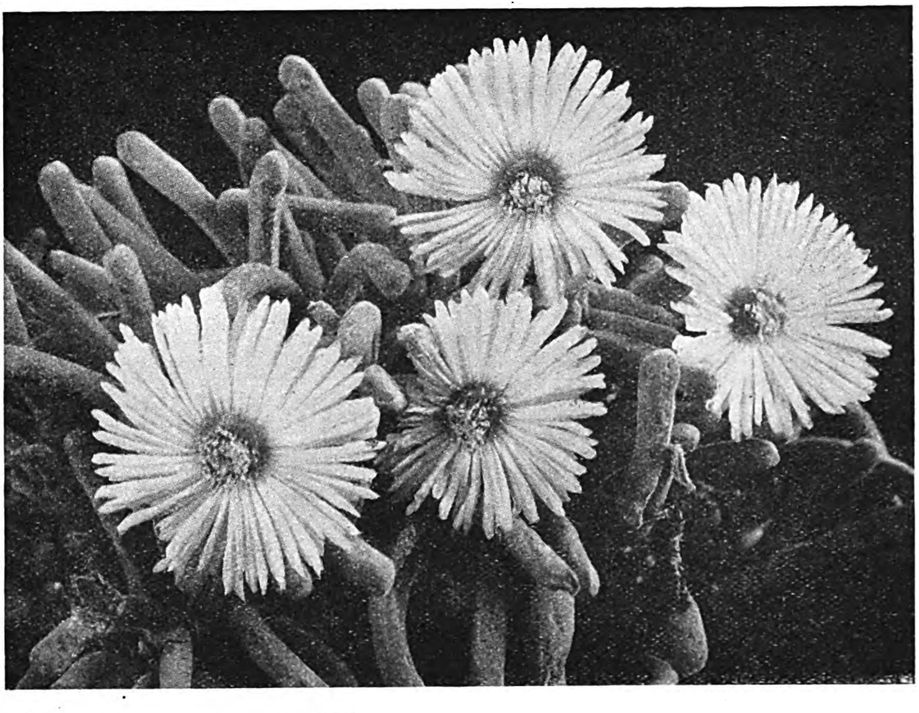


FIG. 21.—MONILARIA PISIFORMIS.
Plant in flower ; petals yellow, fading to white, and pink at the base ; stamens red.

Mesembryanthemum moniliforme, Thunb. in *Nov. Act. Acad. Leop.-Cur.-Ephem.*, Vol. VIII, Append, p. 7 (1791), *Prod.*, p. 88, and *Fl. Cap.*, ed. Schult., p. 413 ; Haw. in *Obs.*, p. 132 and 441, *Misc. Nat.*, p. 24, *Synop.* p. 207, and *Rev.*, p. 93 ; N. E. Br., in *Journ. Linn. Soc.*, Vol. XLV, p. 116, t. 5, f. 10 (drawn from memory), and in *Bothalia*, Vol. I, p. 158 ; Berger, *Mes. und Port.*, p. 56. Mitrophyllum moniliforme, Schwant. in *Zeitschr. f. Sukkulent*, 1926, p. 182. Conophyllum moniliforme, Schwant. in *Zeitschr. f. Sukkulent*, 1928, p. 322.

Van Rhynsdorp Division : On hills near Olifants River, towards the north, Thunberg ! Mrs. E. Rood !

This curious plant was introduced into Kew Gardens by Masson in 1794, but appears to have soon died out. The above description was made from living plants and withered flowers sent to me by Mrs. E. Rood, for Thunberg's type is both leafless and flowerless, having been collected when in a state of rest. The illustrations are from photographs kindly sent to me by Mr. T. N. Leslie. Fig. 14 represents the plant just commencing to grow after a period of rest, and Fig. 19 the same plant when in flower.

M. pisiformis, Schwant. in *Gartenwelt*, 1929, 69.—Plant compactly much branched, 2½–4 inches high when at rest and leafless. Branches erect, 3–4½ lines thick, constricted at the nodes into bead-like, subglobose or ellipsoid joints, varying from 2–5 lines long, glabrous, smooth, brown or greyish-brown. Primary leaves 2–3 lines long, 3–4 lines broad, semi-circular in outline, flat above, convex beneath, glabrous, smooth, green. The second pair of leaves 1–3 inches long, 2–2½ lines thick, sub-terete, slightly flattened on the upper side, very rounded on the back, very obtuse, minutely papulose and glittering, green. Pedicels 2–3 inches long, papillate. Calyx coarsely papillate; lobes 4–8 lines long; the outer ovate at the base, with leaf-like tips; the inner elliptic or elliptic-ovate, with broad, sub-membranous margins. Corolla 1¼–1½ inch in diameter, open in the afternoon; petals in about 3 series, 7–8 lines long, linear, acute, obtuse or slightly toothed at the apex, they are stated to be "top yellow, then white, then pink." Stamens about 2 lines long; filaments red; anthers yellow. Stigmas 5–6, about 1 line long, erectly spreading, stout, ovoid-subulate, acuminate, yellow. Ovary with 5–6 wing-like sutural ridges on the flattened top. Capsule 4½–6 lines in diameter and 2 lines deep when closed, 6½–8 lines in diameter when expanded; inner edges of expanding-keels entire. Seeds about ¼-line long, pale brown with a darker brown point.

Mesembryanthemum pisiforme, Haw. in *Misc. Nat.*, p. 23, *Synop.*, p. 206, and *Rev.*, p. 93; Berger in *Mes. und. Port.*, p. 56. Mitrophyllum pisiforme, Schwant. in *Zeitschr. f. Sukkulent*, 1926, p. 182. Conophyllum pisiforme, Schwant. in *Zeitschr. f. Sukkulent*, 1928, p. 322.

Van Rhynsdorp Division: Van Rhynsdorp Karoo, Mrs. E. Rood!

Described from living plants, which I owe to the kindness of Mrs. Rood. It differs from M. moniliformis by its brown (not greyish) stems, rather smaller flowers, with the petals less crowded, and the red filaments of the stamens. The figures are from photographs sent to me by Mr. T. N. Leslie. Fig. 20 represents the plant at rest, and Fig. 21 when in flower.

M. chrysoleuca, Schwant. in *Gartenwelt*, 1929, p. 69.—Plant 3-4 inches high, compactly branched. Branches [compressed and obscurely 4-angled, 4–6 lines broad and 3–4 lines thick], with joints 2–4 lines long, each old joint with a hard and somewhat rigid, dark brown skin or adherent sheath having its upper part free and forming a cup-like sheath surrounding the base of the joint above it. Primary pair of leaves about 1½–2 lines long, [fleshy and somewhat hemispherical when alive, united into one body for half of their length and closed together]; from between them the second pair emerges, borne on a short, compressed joint or internode; these leaves are 2–3 inches long and 2–2½ lines thick, sub-terete, slightly channelled or flattened on the face, obtuse, papulose. Pedicels 2–3 inches long, papulose. Calyx papulose, the longer lobes 6–7 lines long, lanceolate or oblong-lanceolate, obtuse, and the shorter lobes about 4 lines long, with broad, membranous margins. Corolla about 1½ inch in diameter; petals in 3–4 series, 7–8 lines long, ½–1 line broad, cuneately linear, acute, obtuse or slightly toothed at the apex, white. Stamens about 2–2½ lines long; filaments and anthers of a rich deep yellow. Stigmas 5, about 1–1½ line long, stoutly subulate. Fruit not seen.

Mesembryanthemum chrysoleucum, Schlechter in *Engl. Bot. Juhrb.*, Vol. XXVII, p. 126 (1899); Berger in *Mes. und Port.*, p. 56. M. scutatum, L. Bol. in *Ann. Bot. Herb.*, IV., p. 73 (1927), in *S. Afr. Gard.*, 1928, p. 127 and p. 126, f. 4. and in *Mes.*, p. 59, f. 4 and 60, with Fig. Mitrophyllum chrysoleucum, Schwant. in *Zeitschr. f. Sukkul.*, 1926, p. 182. Conophyllum chrysoleucum, Schwant. and C. scutatum, Schwant., in *Zeitschr. f. Sukkul.*, 1928, p. 322. Monilaria scutata, Schwant. in *Gartenwelt*, 1929, p. 69.

Van Rhynsdorp Division: Karee Bergen, Schlechter 8,292! Little Namaqualand: near Walle Kraal, Pillans 17,794!

I am indebted to Mr. T. N. Leslie for a living plant, flowers and photographs of this interesting species. Mr. Leslie's plant, here figured, was received from Mr. Pillans and is his No. 17,794, which has been described by Mrs. Bolus as Mesembryanthemum scutatum, but I am unable to distinguish it in any way from M. chrysoleucum. The words in the description that are between square brackets [] are from this living plant, but all the rest of the description is made from a type specimen of M.chrysoleucum, which has been so crushed in pressing that the stem and leaves do not show their true form. Fig.12 p.25 represents the plant just commencing to produce its leaves, and Fig. 13 p. 27 the same plant when in flower. *N. E. Brown.*

(*To be continued*).

THE GENUS PRIMULA.

(*Continued from p.* 10).

OVALIFOLIA (Franch.). Oval-leaved P. (Petiolaris-Davidii.)

THIS herbaceous, perennial species produces a tuft of thin or somewhat leathery, oval, blunt leaves three to four inches long, gradually, or abruptly contracted into a stalk equalling, or shorter than, the blade in length; margins furnished with regular, rounded, or nearly entire, ciliate teeth; both surfaces and the stalks more or less clothed with minute, rust-coloured hairs. Flower stem one-and-a-half-inch to six inches tall, covered with rust-coloured hairs, and bearing at its apex an umbel of purple flowers. Corolla concave, about one inch across; lobes egg-shaped, slightly notched; tube funnel-shaped, longer than the calyx. In cultivation in 1906.

Grows in alpine pastures on the mountains of Yunnan, near Mupin, and also on those in the province of Hupeh and near Mongtz, central Szechuan, China.

Culture: As for P. Davidii.

OXYGRAPHIDIFOLIA (W. W. Sm.) Sponge P. (Farinosae.)

This dwarf species possesses a slender rootstock which is clothed at its crown with the remains of previous seasons' foliage, which form a conspicuous white, sponge-like mass. The smooth, non-mealy leaves, produced in rosettes, are about half-an-inch long with blades varying from almost orbicular to lance-shaped; they are blunt or rounded at the tip, abruptly or gradually narrowed into a winged stalk somewhat dilated at the base; margins entire, or furnished with from one to three teeth; upper surface deep green, underside olive-green. Flower stem about two inches tall, axillary, bearing a solitary mauve flower with a pale yellow eye, or lavender-blue with a grey eye. Corolla nearly three-quarters-of-an-inch across, more or less flat, with broadly heart-shaped, deeply notched lobes; tube cylindrical, dilated upwards, about half-an-inch long, with a distinct ring in the throat. Flowers in June and July.

Grows in crevices and on ledges of limestone cliffs, also in open, moist, stony alpine pastures, on the mountains around Muli, in south-western feet Szechuan, at 12,000 feet to 15,000 feet above sea-level.

Culture: Fibrous loam, peat and limestone chips in an open, moist position, with protection from damp in winter, should suit it.

PALINURI (Petagna). Italian Cowslip. (Auricula-Euauricula).

This species has a stout rootstock, which, when aged, produces masses of thick, woody stems on, or just below, the surface of the soil, and resembling those of a German Iris. The tufts of rather fleshy, light green leaves have oblong or oval, blunt blades, tapering to a long, or short stalk, in all two inches to eight inches long; margins cartilaginous and furnished with sharp teeth; both surfaces more or less smooth, except on the margins, where there are minute, glandular hairs. Flower stem three inches to ten inches tall, mealy upwards, and bearing a one-sided umbel of from ten to forty nodding, fragrant, Cowslip-like flowers. Corolla yellow, half- to five-eighths-of-an-inch across, campanulate, divided into five oval, slightly notched lobes with incurved margins; tube funnel-shaped, about half-an-inch long. Flowers from February to August. *Bot. Mag.*, t. 3,414; *Gard. Chron.*, Vol. LVI, p. 217, fig. 87. In cultivation in 1816.

Grows in clefts in rocks at 1,000 feet above sea level and in sand on the sea-shore, in one or two localities in the Province of Salerno, in southern Italy.

Culture: It flourishes in good, calcareous loam and sand, in sun or shade; it also succeeds in a cleft in a limestone rock, packed with the above compost. It is quite hardy when once established, but does not blossom freely until it has reached a considerable size. *A. W. Darnell.*

(*To be continued*).

VEGETABLE GARDEN.

SPRING CABBAGES.

DURING the last winter many thousands of Cabbage plants were lost and it was disappointing to see so many thin Cabbage beds during the spring when vegetables were so scarce. It may seem rather an unimportant subject, but where large supplies of vegetables have to be maintained the loss of a bed of spring Cabbages is disastrous, as crop should fill the gap between the ordinary supplies and the choicer vegetables, such as Peas, Beans, Cauliflower, etc., especially in the North of England, where soils and climate are so much colder. Generally, very little trouble is taken with such a commonplace vegetable, the seeds being sown according to the district, and the seedlings in due course planted out from the seed beds; in many cases, this practice answers admirably, but in others it proves disastrous if really bad weather prevails during the ensuing winter.

I have found that in this particular area and with the heavy cold soil I have to deal with, it is essential to prick out the young seedlings from the seed bed so soon as large enough, into nursery beds in rows nine inches apart, allowing three or four inches between each plant; in this way the plants develop into good, strong, sturdy specimens, with hard stems which defy the slugs and frost and come through the winter such as the last with no bad results. The illustration (Fig. 22) shows a bed of 5,000 spring Cabbages, mostly of Sutton's Harbinger, a week after cutting had commenced, and well demonstrates the value of the above method of cultivation.

The first sowing of Harbinger was made on July 20, followed by further sowings during August, the resultant plants eventually being planted after Onions, the ground being cleaned and cultivated to a depth of four inches, just sufficient for planting; no soil was drawn up to the stems until the hard frosts of the spring had departed, as the soil was always too wet.

As there were so many disappointments during last spring among Brassicas, I offer these suggestions as a means of defeating the weather where there is any difficulty in bringing the plants safely through the winter.

Another good method which is always advisable is to prick out the later and the later-sown plants into skeleton frames, which may be protected, as these make an admirable succession to the early crop. There are many good strains of Cabbage, but for quality and earliness I have yet to find one to beat Sutton's Harbinger, and in the bed depicted only ten ran to seed. If a true stock of Ellam's Early can be procured it is also one of the finest Cabbages to grow, followed by Sutton's April, and Flower of Spring; but, as in all vegetables, strain is important. *A. Falconer, Cheadle Royal.*

SOCIETIES.

ROYAL HORTICULTURAL.

July 9.—Although this was the occasion of the Amateurs' Flower Show, the Floral and Orchid Committees met, but had very little work to do. The judges were the busy people, and their duties were unusually heavy, by reason of the extent of the show, the keenness of the competition, and the fine quality of the exhibits throughout. This was certainly by far the best of the several Amateurs' Shows yet held, and the veteran Mr. H. B. May—to whom the inception of such shows is due—must have been satisfied that his scheme, carried into effect, has at last been thoroughly justified by results.

The flowering shrubs, the Orchids, stove and greenhouse plants, and the hardy border plants were particularly effective and interesting, but Lilies, Sweet Peas, Roses, Carnations, bulbous plants, annual flowers and Delphiniums all added their quota of beauty and interest.

Orchid Committee.

Present: Sir Jeremiah Colman (in the chair), Mr. Gurney Wilson (Hon. Sec.), Prince Shimadzu, Mr. Fred J. Hanbury, Mr. T. Armstrong, Mr. Charles H. Curtis, Mr. A. Dye, Mr. S. Flory, Mr. H. H. Smith, Mr. Fred K. Sander, Mr. H. G. Alexander and Mr. J. Cowan.

There were few members present, and only four plants presented for consideration. No awards were made, and exhibitors, as usual, complained of the dead white background of the walls in the Committee Room; a screen of neutral colour would provide a background suitable for Orchids, and one long overdue. Sir Jeremiah made a kindly reference to the passing of Mr. Ballantine, who was a member of the Committee very many years ago; the Committee agreed that a letter of sympathy be sent by the Hon. Secretary to Mr. Ballantine's family.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mr. H. R. Darlington, Mrs. Helen Lindsay Smith, Mr. A. E. Vasey, Mr. J. T. West, Mr. C. F. Langdon, Rev. Rollo Meyer, Mrs. Ethel Wightman, Mr. Arthur Turner, Mr. George Churcher, Mr. J. F. McLeod, and Mr. W. D. Cartwright (Secretary).

No awards were made by this section of the Committee.

Present: Section B.—Mr. C. T. Musgrave (in the chair), Mr. F. C. Stern, Mr. F. G. Preston, Mr. G. Yeld, Mr. Hiatt C. Baker, Mr. Mark Fenwick, Lady Beatrix Stanley, Mr. W. B. Cranfield, Mr. C. Williams, Mr. T. Hay, Sir William Lawrence, Mr. Gerald W. Loder, Mr. E. A. Bowles, Mr. A. Bedford, Mr. James Hudson, Mr. Amos Perry, Mr. G. Reuthe, Mr. W. J. Bean, the Marquis of Hartington, Mr. T. W. Taylor, Mr. L. R. Russell and Mr. N. K. Gould (Secretary).

AWARDS OF MERIT

Cyananthus Farreri—A lowly plant with mossy growth and leaves, resembling some Saxifrages. The flowers are terminal and solitary, at the ends of the new growths; they are deep rich violet-blue with a brown, hairy calyx. The species is from Tibet, and was shown as suitable for flowering in an alpine house. Shown by Lady Aberconway and the Hon. H. D. McLaren (gr. Mr. F. C. Puddle), Bodnant.

Circium occidentale var. Coulteri.—This Californian Thistle (Fig. 11, see also p. 28) flowers in the second year from seed-sowing; it has silvery-white leaves and stems, and a flower head consisting chiefly of stamens of varying lengths, the lower ones being of rich cerise-red shade that is almost scarlet when the partly opened heads are seen in bright sunshine. The involucre is spiny, silvery-grey and webbed with fine cotton-wool. Shown by Mr. T. Hay, Hyde Park.

Aster adfinis.—A charmingly pretty South African, half-hardy annual plant, almost eight inches high when in flower, bearing numerous rich blue flower heads, each with a disk of yellow florets and anthers. The ray florets are almost three-quarters-of-an-inch to an inch in length, narrow, and set well apart, so that a flowering specimen is quite graceful. The plant has a lowly branching habit, and the linear leaves are soft green. It is probably identical with Felicia adfinis. Shown by Messrs. Sutton and Sons.

Competitive.

ORCHIDS AND STOVE AND GREENHOUSE PLANTS.

The premier award for a group of Orchids arranged on a space twelve feet by four-and-a-half feet, was won by Lionel de Rothschild, Esq. (Orchid grower, Mr. B. Hills), Exbury, Southampton, with a very bright display wherein Dendrobium thyrsiflorum and brilliant Odontiodas formed the central feature. On either side excellent plants of various Miltonias were grouped in front of Cattleya gigas, C. Martinetti, C. Bletchely Prince, C. Falco and C. Mossiae. The best of the Miltonias were M. vexillaria var. Snowflake, M. v. var. Constance Wigan, M. Greta, M. J. Gurney Fowler, M. Lyoth, M. gattonensis, M. Kennie var. Aladdin and M. Charlesworthii. A few Odontoglossums and Epidendrum vitellinum majus were also shown. The second prize fell to Mrs. Carl Holmes (gr. Mr. W. J. Penton), The Node, Welwyn, who also had a fine group in which Miltonias figured largely, together with Phalaenopsis Rimestadiana, Cypripedium bellatulum, C. niveum, C. Curtisii var. Sanderae, Anguloa Cliftonii, Cattleya Harold var. alba, and several small plants of Miltonia St. André and M. William Pitt. Third prize was awarded to J. J. Joicey, Esq. (gr. Mr. J. Mackay), The Hill, Witley, Surrey, whose outstanding plants were of Dendrobium thyrsiflorum, Brasso-Laelio-Cattleya Witleyensis, Coelogyne Dayana and Cypripedium St. Swithin.

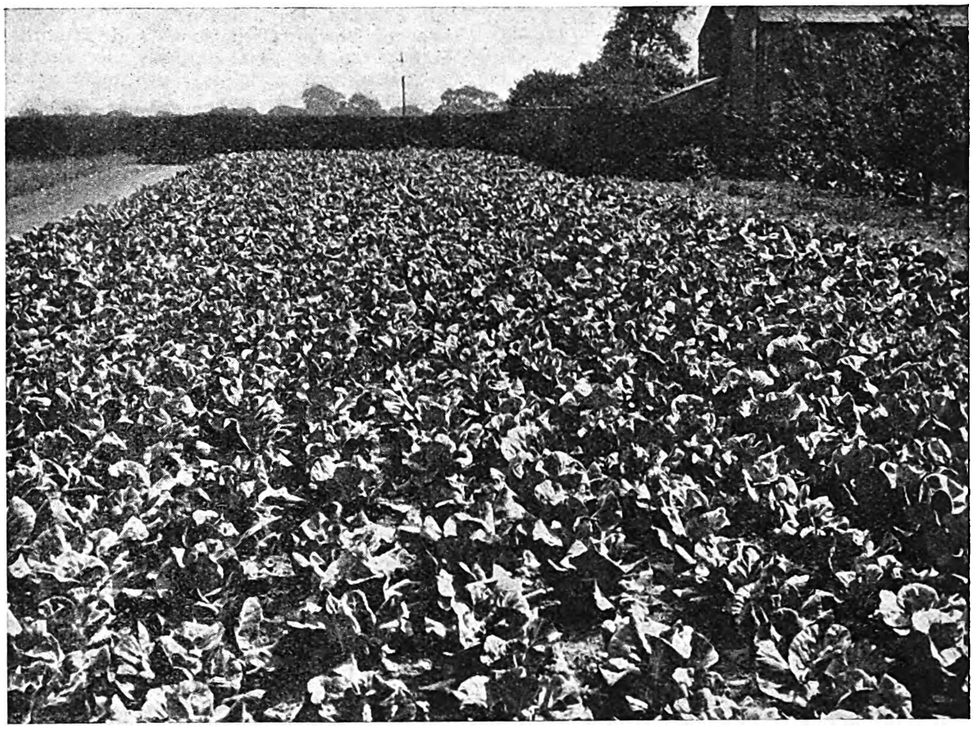


FIG. 22.—CABBAGE HARBINGER.
A bed of 5,000 plants at Cheadle Royal; Spring, 1929 (see p. 34).

Mr. Lionel de Rothschild was also placed first for a dozen Orchids, and in this class he showed Miltonia Lena, Dendrobium acuminatum, Cattleya Mendelii var. Stuart Low, Oncidium crispum, Brassavola Digbyana, Lycaste cruenta var. majus, Odontioda Etna, Odontoglossum Gorizia var. Perfecta, Thunia Winniana, Cypripedium Forest King and Cochlioda Noezliana, all in good condition. Second, Mrs. Carl Holmes, whose Dendrobium acuminatum, Epidendrum prismatocarpum and Brassia verrucosa were very good; third, F. J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead.

In the division open only to amateurs who employ no more than one gardener and a boy, or a part-time man, a class was provided for three Orchids. There was but one entry and this consisted of Phalaenopsis Parishii, Lycaste cruenta and Vanda suavis, the last carrying a pair of spikes. A first prize was awarded to A. M. Gentle, Esq. (gr. Mr. B. Waller), Church Crescent, St. Albans, for this exhibit.

The groups of flowering plants, arranged against the wall, were all handsome arrangements. The first prize was won by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Southampton, with a magnificent group which included a representative variety of Anthuriums, Hippeastrums, Hydrangeas, tall bushes of Gardenias well set with flowers, Himalayan Rhododendrons, greenhouse Carnations and Clivias. All the plants illustrated first-rate cultivation, and they were arranged tastefully. The second prize group of A. P. Brandt, Esq. (gr. Mr. J. W. Barks), Bletchley Castle, Bletchley, contained many superb Codiaeums (Crotons), but it lacked the variety of the first prize group, and the arrangement, although dignified was a trifle more formal. J. Sanders, Esq, (gr. Mr. W. E. Pullen), Millbrook, Chigwell was awarded the third prize for a quiet, restful group of Caladiums and other foliage plants, with a couple of Orchids and a Bromeliad in flower. Sir William Lawrence, Bart. (gr. Mr. Everatt), Burford, Dorking, was fourth.

In the class for six pots and pans of alpines the first prize was won by Mark Fenwick, Esq. (gr. Mr. F. Tustin), Abbotswood, Stow-in-the-Wold, who included good pans of Saxifraga cochlearis minor, Campanula Mrs. Payne and Leontopodium alpinum. Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, was second, with an interesting collection which included good plants of Campanula W. H. Payne and Androsace lanuginosa var. Leichtlini. Colonel Stephenson Clarke, C.B. (gr. Mr. W. Fleming), Borde Hill, Haywards Heath, was first in the class for one alpine with a good example of Petrocosmea nervosa, and Sir William Lawrence, Bart., was second with Monardella macrantha.

The best collection of four vases of Antirrhinums was shown by Mrs. Hamilton (gr. Mr.

W. Smith), Kingshead, Claygate. The first and second prize collections of six tuberous Begonias were very meritorious. Double-flowered varieties were shown, and the prize-winners were T. Crawford, Esq. (gr. Mr. J. Whiting), Whitehall, Bristol, and Lady Carr (gr. Mr. J. T. Doe), Walton-on-the-Hill, in the order named. The Gloxinias also showed excellent cultivation. Lady Carr won the first prize with six splendid plants, and C. H. Watkins, Esq., Muswell Hill, was second. J. H. Jenkins, Esq. (gr. Mr. W. Dennis), Kenley, Surrey, was first with six exceedingly good Fuchsias, and Sir William Lawrence, Bart., was a good second.

There were three very interesting exhibits of spikes of six distinct bulbous plants. The first prize was won by Sir William Lawrence, Bart., with Ismene Sulphur Queen, Eucharis Burfordiensis, Pancratium speciosum, Dierama pulcherrima, Zephyranthis vericunda and Iris Anglica. Lionel de Rothschild, Esq., had a spike of Crinum Poweli alba and a bunch of Cyclamen europeum in his second prize exhibit

The first prize for six foliage plants in pots was awarded to H. W. Henderson, Esq. (gr. Mr. F. L. Pike), West Woodhay, Newbury, for half-a-dozen splendid Codiaeums. A. P. Brandt, Esq., was second, with a variety of well-grown specimens. H. E. Chubb, Esq. (gr. Mr. W. J. Drew), Chorley Wood, was first with six exceedingly good plants of Streptocarpus. There were three interesting little collections of Succulents and the first prize collection of H. J. Harrison, Esq., New Cross, London, included a good variety. F. Davidson, Esq., Exeter Road, N.W., was second.

Lionel de Rothschild, Esq., was easily first in the class for nine flowering plants, where he had Hoya carnosa, Rhododendron Monarch and a good Hippeastrum seedling. Sir William Lawrence showed Eustoma Russelliana and Attaca cristata in his second prize exhibit. Lionel de Rothschild, Esq., was the only exhibitor of a group of greenhouse flowering plants of one genus, and he was awarded the first prize for an excellent arrangement of very good Carnations.

E. H. Atkin, Esq., Muswell Hill, was awarded the first prize for a pleasing group of miscellaneous plants in Class 81.

The various classes for Ferns were not quite so well contested as in former years, but very good plants were staged. C. W. Mander, Esq., Chorley Wood, was awarded the first prizes for twelve Ferns in pots and for a similar number of British Ferns in pots or pans. He had very good specimens, and his greenhouse Ferns, included useful varieties of Adiantum, Nephrolepis, Pteris and other genera. His British specimens were good forms of Lathraea, Osmunda, Polypodium and Scolopendrium. J. H. Jenkin, Esq., Kenley, showing varieties of Adiantum, Pteris and Asplenium, was first with six greenhouse Ferns, and C. Henwood, Esq., Brondesbury, London, had a similar number of very fine British Ferns, while C. Luckin, Esq., East Grinstead, was awarded first prizes for three plants each of greenhouse Ferns and of British Ferns.

In the principal classes the Sweet Peas were of even better quality than at the recent show of the National Sweet Pea Society. There were seven especially fine collections of twelve vases of distinct varieties, and Mrs. Wigan (gr. Mr. F. W. Cotterell), Danbury Park, Chelmsford, who won the first prize and the N.S.P.S. Silver-gilt Medal, had superb vases of Youth, Purple Monarch, Grenadier, Gleneagles, Ivory Picture, Magnet, Powerscourt, Mrs. A. Searles, Sunkist, Chieftain, Avalanche and Flamingo. F. W. Franks, Esq. (gr. Mr. W. Humphrey), Loampits, Tonbridge, was a very good second, and he had splendid vases of Hero, Glorious, Wild Rose and Royal Pink. Major C. B. Krabbe (gr. Mr. A. W. Gower), Calcot Grange, Reading, was third in this strong class. William Huffey. Esq. Boormans, Tonbridge, won the first prize with six vases of Sweet Peas for the third year in succession. He showed magnificent vases of Royal Pink, Powerscourt, Mammoth, Youth, Royal Sovereign and Pentore. G. Holder, Esq., Oxted, Surrey, was second.

Roses did not quite reach the high standard of the Sweet Peas, though several very attractive exhibits were staged. Mrs. E. M. Wightman won the first prize for six Polyantha varieties, with a good selection which included Golden Salmon, Ellen Poulsen and Else Poulsen. The best six vases of rambler Roses, shown by Mrs. Tibley, Northwood, included well-flowered sprays of Erecta, Alberic Barbier, Blush Rambler, and American Pillar. H. E. Cribb, Esq., had the best six vases of Single Roses, and his vases of Silver Moon, F. Mitten and American Pillar were exceptionally good. In the class for twelve vases of Tea or H.T. varieties, the chief prize was won by E. H. Pleasance, Esq., Cambridge, with an admirable exhibit in which the best were Shot Silk, Avoca, Lady Dixon Hartland and Margaret McGreedy. Mr. G. A. Hammond, Burgess Hill, was second, and his best vases were of Mrs. C. V. Haworth and Mrs. A. R. Barraclough. In Division B., Mrs. E. M. Wightman won the first prize for three vases of dwarf Polyantha varieties, and included particularly good sprays of Coral Cluster and Else Poulsen. Mrs. Torkington, Maidenhead, showing Paul's Scarlet Climber and other useful sorts, was first with three vases of Pillar Roses. In Division C., Mrs. Stuckey, Billericay, had the best vase of one variety, and C. Norman, Esq., Wembley Park, was first with three vases of Tea or H.T. varieties.

J. Fairlie, Esq., Acton, was first with six vases of border Carnations, and Lionel de Rothschild, Esq., was similarly successful with the greenhouse varieties, both showing very good blooms.

Mrs. Emmott (gr. Mr. P. Sherlock), Reigate, won the first prize with twelve vases of very good annuals, which included Ten-week Stocks, White Spiral Candytuft and Clarkias. Sir William Lawrence, Bart., was second. Delphiniums filled a long stretch of tabling and made a fine display. The best twelve vases was shown by Mrs. Hamilton, who had a pleasant variety of good spikes. Mrs. Emmott was a good second. The exhibits of six vases were of equally good quality, and the first prize vases of R. Morton, Esq., Woodside Park, London, were very pleasing. Mr. A. J. Weeks, Limpsfield, was a very close second. L. D. Corder, Esq., Bromley, had the best three vases of Delphiniums.

The many exhibits of cut sprays f hardy shrubs in flower made a fine display and attracted a deal of well-merited attention. Lionel de Rothschild, Esq., had the best twelve vases in which he included very floriferous sprays of Magnolia macrophylla, Azalea optima, Buddleia alternifolia and Zenobia speciosa. Gerald W. E. Loder, Esq., Wakehurst Place, Ardingley, Sussex, was a close second, and his chief shrubs were Rhododendron discolor, Lonicera tragophylla, Kalmia latifolia, Stewartia chineniss and Magnolia parviflora. Colonel Stephenson R. Clarke was third in this large class. Mrs. A. Desborough, Broadstairs, won the first prize with six vases of hardy flowering shrubs. The chief sorts were Desfontania spinosa, Embothrium coccineum and Abutilon vitifolium. Lord Woolavington (gr. Mr. E. W. Fuller), Lavington Park, Petworth, was second, with well-flowered sprays of hardier subjects. In Division B., the best six vases were staged by Mrs. Torkington, Maidenhead, who had good vases of Phlomis fruticosa and Escallonia rosea. Mrs. E. M. Wightman was second.

FÉDÉRATION HORTICOLE PROFESSIONELLE INTERNATIONALE.

The Annual Conference of this Federation was to have been held in London at the time of the Chelsea Show, but as that period proved unsuitable to the French delegates, the Conference was postponed until July 3, when it opened under the Presidency of Mr. G. W. Leak, in the Royal Horticultural Society's Lecture Hall, kindly lent for the purpose.

About seventy delegates were present, representing England, France, Belgium, Holland, Germany, Switzerland and Italy, and after a vote had been taken, Poland was also admitted.

Mr. Leak welcomed the foreign delegates, and said that although the Conferences sometimes failed to do all that was hoped, they were justified because of the opportunity, afforded for the creation of friendships among commercial horticulturists of many nations, and the discussion of questions of mutual interest; in short, the Conference was a kind of Horticultural League of Nations, and as such deserved support. Baron Cartier, the Belgian Ambassador, was present to show the interest his nation takes in the annual international gatherings, and he also made a kindly speech in which he emphasised the value of such meetings, because more could be done by personal discussion than by many letters.

M. Chas. Pynaert, Mr. Schetelig and Mr. Krelage were appointed Vice-Presidents, Poland was admitted, and the Minutes and Report of the Ghent Conference of 1928 were adopted as printed and circulated. M. Sauvage, the Treasurer, was unavoidably absent, for the first time since 1919; his accounts were adopted subject to audit, and a telegram of sympathy was sent to the veteran florist. The accounts showed an expenditure of 5,951 francs on printing and a credit balance of 3,662 francs.

M. Turbat who was subsequently re-elected General Secretary, pointed out that the work was now so heavy, and he was so busy (he is Mayor of Orleans, as well as head of a nursery business), that he needed paid clerical assistance. A very long discussion ensued, and a desire was expressed for a condensed report or a typed one for each nationality, as a means of reducing expenses on printing, and thus providing money for clerical assistance. M. Turbat, however, would not agree to the curtailment of the printed report of Conference proceedings, and even stated that unless the annual report was published in the usual way, he could not see his way to retain the position of Secretary. The matter was shelved to a further sitting of the Conference, but when it was again brought up M. Turbat was still obdurate, and so the Conference let him have his own way, and agreed that each nationality should increase its annual subscription to meet the increased expenditure.

Regarding the Bureau of Plant Registration, it was agreed that everything possible should be done to protect the raisers of novelties, but legislation appeared unable to meet the needs, although a proposal before the French Senate seemed to be an advance on previous suggestions. The Conference approved the French proposals, and hoped the new law, if adopted, would protect raisers and give them rights in the novelties they produced. It was left to each nationality to suggest to its own government a plan of protection for raisers of new plants. Some delegates considered such legal protection would be of little use owing to the difficulties of identification. Against this, it was considered that legal protective machinery should be evolved, even if raisers did not choose to take advantage of it; moreover, the certificates of recognised horticultural societies, and the descriptions published of Certificated plants, fruits and vegetables would provide a means of identification in cases of disputed rights.

The discussion was continued at some length, and eventually it was agreed to explore the possibilities of legal action in each country represented, and to form a special committee to report progress at the Conference in 1930. The Committee appointed consists of Mr. Edward Laxton (Britain, Secretary), M. Rène Barbier (France), M. Emile Praet (Belgium), M. Krelage (Holland), Mr. Blossfield (Germany), M. Bertsch (Switzerland), Dr. Sgaravatt (Italy) and M. Machlejd (Poland).

Arrangements were made for the holding of various Committee meetings between the delegates of certain countries for the elucidation of specific matters. The general reports on the condition of horticultural trade were taken as read. Questions of international transport, packing and over production did not occupy much time.

The only alteration of the statutes suggested was one to admit landscape gardeners and retail florists. As neither of these classes of horticulturists were regarded as "producers" the question of their admission was left over until next year, so that delegates could consider the position of the F.H.P.I. in regard to these sections of the horticultural trade.

The Conference then adjourned until the next day.

The second session (Thursday, July 4) opened shortly after 10 a.m., when phytopathological questions were discussed, and also the creation of an International Phytopathological Bureau. The Conference was agreed, as on a previous occasion, that an international form of certificate of health for plants should be instituted, and if signed by a competent authority, should secure the admission of the plants it accompanies into any country. Mr. Krelage gave a report of the diplomatic Conference for the protection of plants, held in Rome last April, and said that the final text of the convention was quite acceptable from the point of view of international trade. It guarantees the security of crops, and the rights of any country to defend itself against pests, but expressly states that the interests of international trade should be borne in mind. It agrees that cereals, fruits, vegetables, cut flowers and perishable subjects should not, in general, need a health certificate from the deporting countries and, further, that health certificates for plants should not be made use of as a form of prohibition. At the F.H.P.I. Conference of 1928, the view was expressed that horticulturists should be represented at the Rome Convention; Belgium and Holland sent delegates, but Britain was not represented. This omission was due to the fact that the original proposals made by the International Agricultural Institute could not be approved by the British Government but, as Mr. Krelage pointed out, the final text is so different from the first that there is good reason to believe that the motive for not becoming a signatory to the convention no longer exists, and he hoped the British delegates to the F.H.P.I. would study the matter and recommend their Government to sign.

Mr. Krelage was heartily thanked on behalf of the Conference by M. Pynaert and Mr. C. H. Curtis, the latter at the same time giving a précis of the basis of discussion on phytopathological questions which will take place at the meeting of the British Association at Cape Town on July 26.

Various reports were presented but not discussed, and some items dealt with on the previous day came up for further consideration.

The rest of the morning—and there was not much time left—was devoted to the interesting subject of Plant Nomenclature. In view of the Congress of 1930, Mr. E. A. Bunyard (as Chairman of the R.H.S. Nomenclature Committee) was invited to open this discussion. His observations were of an explanatory nature and as each delegate was furnished with a copy of the R.H.S. report on nomenclature proposals in *The Gardeners' Chronicle* of June 29, his observations were followed easily and with great interest. At the conclusion of his remarks, the proposals (as set forth in our issue of June 29) were adopted, and Mr. Bunyard was heartily thanked for his presence and his elucidatory comments.

The final session, on Friday, July 5, opened rather late, as several Committees had met at 9 o'clock. A provisional promise of increased subscriptions was received from all the delegates.

The marking of imported Roses as now demanded by Great Britain caused a good deal of comment from Dutch and French growers, but M. Barbier's report, as was evident, had been made without full knowledge of the conditions laid down. Mr. Leak explained that nearly all goods imported into Great Britain had now to be labelled as foreign, with the country of origin in many cases, when exposed for sale. The marking of Roses did not affect exporters, it was the importer who had to mark the plants—under the Merchandise Marks Act—when he exposed them for sale.

International exhibitions were considered on a report presented by Mr. Krelage, and on the proposal of Mr. C. Engelmann, seconded by Mr. Jac Smit, it was agreed "that delegates present shall make strong representations to their respective Governments that in future flowers and plants solely for exhibition purposes should be admitted duty free."

The Conference accepted an invitation from the Italian delegates to meet next year in Venice, probably in September, as the German delegation proposed to invite the Conference to Berlin in 1931 instead of as previously arranged, in 1930. As a consequence, M. Mercatelli was chosen as President for 1930, and Mr. Schetelig Vice-President.

Very sincere were the thanks accorded to Mr. G. W. Leak for so ably presiding over the whole of the Conference proceedings; these thanks were voiced by Mr. Jac Smit, probably the most cosmopolitan of the delegates present.

Social events connected with the Conference included luncheon given to the delegates by the Royal Horticultural Society on Wednesday, when Mr. Gerald Loder presided; dinner, given to the delegates by His Majesty's Government, at Lancaster House, on Wednesday evening, when the Minister of Agriculture, Mr. Noel Buxton, presided; luncheon, on Thursday, given by the Horticultural Trades Association and the British Florists' Federation, when Mr. Rich presided, and the tables were charmingly decorated by Mr. Harry Miles, with Carnations given by Mr. C. Engelmann (President B.F.F.); a visit to Wisley on Thursday afternoon, when the R.H.S. entertained the delegates to tea; and visits to the exhibitions of the National Sweet Pea Society, the National Rose Society, the House of Commons, and the British Delphinium Society.

BRITISH DELPHINIUM.

The first show of this Society was held in the new hall of the Royal Horticultural Society, and augured well for the future exhibitions of this young Society, for it was a very successful event, the large hall being comfortably filled with exhibits. The trade was chiefly responsible for the success of the show, and we look forward, in future years, to amateur Delphinium growers—they must be legion—taking a more prominent part. We congratulate the British Delphinium Society upon its first attempt at staging an exhibition.

Competitive Exhibits.

These were divided into two sections, for amateurs and the trade, respectively, and while several of the amateur classes were well contested quite a number were sadly lacking in exhibitors.

Mr. W. C. Blakeway, Droitwich, was awarded the Blackmore and Langdon Challenge Cup, for the best group of Delphiniums staged on a table space eight feet by three feet, with an exhibit of magnificently grown inflorescences of many delicately coloured seedlings. For twelve spikes, in not less than six varieties, Mrs. Hamilton, Kingsmead, Claygate, was awarded the first prize, her spikes of Blue Bird, and also of several unnamed seedlings, being very good, while in the class for six spikes of six varieties, Mr. C. Reynolds, Walton Road, Bognor, was placed first, and Mr. L. D. Corder, Bromley, second.

Mrs. J. M. Docura, Surbiton, was awarded the premier award in the class for six spikes, not fewer than three varieties, with a very good set; the second prize going to Mrs. A. E. Gold, and the third to Mr. C. Reynolds; while in the class for six varieties, two spikes in each vase, Mr. L. D. Corder was awarded the first prize, his grand spikes being of Garbus, Modesty, Rapture, Peacock, Chamaeleon and Mrs. G. Day.

For three varieties, one spike of each, Mr. W. C. Blakeway was first, with three unnamed seedlings; second, Mr. L. D. Corder, who showed good spikes of Constance, Major Pat a'Beckett, and Amos Perry; third, Miss Phyllis Gold, Wilton Grove, Wimbledon.

Mr. Blakeway was first in the popular class for the best arranged vase of Delphiniums, with an attractive vase of grand spikes; the second prize-winner being Mrs. Hamilton, with Mr. E. A. Gold, third; while for the best arranged basket of Delphiniums—another popular class—Mr. L. D. Corder was placed first; Mrs. S. H. Roberts, second, and Mr. C. Reynolds, third. Mr. W. C. Blakeway showed the best spike of a light, semi-double, or double, Delphinium, exhibiting a grand spike of Quaker Girl, pale blue and pale mauve; second, Mrs. Hamilton, and third, Mr. F. Wynn Hillings, Kingston Hill, with a goodly spike of Mrs. A. J. Watson. Mr. Blakeway was also the winner of the Challenge Cup presented by Messrs. Hewitt and Co., for the best six spikes of new seedlings raised by the exhibitor, showing Perdita, light blue and pale mauve; George Bermay, with rich blue outer petals, the inner ones being mauve; Rosalind, and unnamed seedlings.

The most important competition in the trade section was for the Challenge Cup presented by Mrs. G. D. Gold, for the best group of Delphiniums on a floor space not exceeding thirty-six feet by eight feet, and the exhibits staged in this class constituted the chief feature of the show. Messrs. Blackmore and Langdon were easily first; in fact, none of the other exhibits approached the display set up by this notable firm, which was in the form of a huge rectangular pyramid, crowned with magnificent sheaves of Mrs. H. Kaye, Lord Lansdowne, deep blue, with a white eye, and Mrs. A. J. Watson, which towered above masses of grand, in fact, superb, spikes of Norah Ferguson, pale blue and soft mauve; Lorenzo de Medici, Constance, with large, single, Gentian-blue, white-eyed blooms borne in long spikes; Lady Gwendolen, semi-double and light blue in colour; Lavenda, Purple King, Mrs. Shirley, Lady Edith and Mrs. P. Nilke. At each corner of this magnificent group was an enormous basket of grand spikes of individual varieties, *i.e.*, Lady Edith, Mrs. Newton Lees, Blue Bird, very fine, and Lady Elizabeth.

Mr. W. Wells, junr., was awarded the second prize for a massive group of many sorts, but many of his spikes were somewhat lacking in quality. Among his outstanding varieties, however, were Mrs. Creighton, deep blue with a brown eye; Queen of Bath, soft blue, single; Corry, double, light blue shaded with mauve; Gwen, Mrs. Townley Parker, Lord Lansdowne, Glory, Joan Carter, Ludwig Wulmer, Duke of Connaught and Harry Smeatham, a grand sort with brilliant porcelain-blue flowers in an attractive, open spike.

In Messrs. Hewitt's group the most notable sorts were Will Shakespeare, Rose Marie, Duchess of York, Advancement, Norah Phillips, Blue Bird and Afghan Queen; Messrs. Chaplin Bros. had good spikes of Belladonna Orion, Rev. Charles Storr, Lady Faire, van Veen's Giant, Blue Star, Mrs. Creighton and Mrs. W. B. Mackintosh; while outstanding in the exhibit set up in Messrs. H. J. Jones' group were Glory, Ludwig Wulmer, Patricia, Enid a'Beckett, Mrs. H. J. Jones, Phyllis, Freedom and Major Pat a'Beckett.

Mr. T. Carlile was awarded the first prize for a group of Delphiniums on a floor space not exceeding fifteen feet by eight feet, and deservedly so, for his exhibit was charmingly arranged and contained many grand spikes, the best being of Mrs. H. Kaye, Beecroft, Mrs. R. Ashcroft, Lady Prince, Gloriosa, Mercurius and Queen Mary. Mr. T. Bones was second, showing Luxor, Clarissa, Mrs. Shirley, Hunsdon Dell, very fine; Mrs. H. Kaye, Rejnstroom and Rev. Charles Storr, in grand condition; Mr. Gavin Jones was third.

Messrs. Blackmore and Langdon were easily first for eighteen varieties, distinct, three spikes of each, and were the recipients of the Challenge Cup presented by Mr. G. F. Berney. Their spikes of Lady Eleanor, Doris, Lady Edith, Lady May and Mrs. Foster Cunliffe were simply magnificent, and they also included several fine unnamed seedlings. Mr. T. Carlile was second in this class, his best vases being of van Veen's Triumph, Mrs. T. Carlile, Mrs. H. Kaye, Millicent Blackmore and Norah Ferguson; third, Mr. T. Bones. Messrs. Blackmore and Langdon were also first for twenty-four spikes, distinct, showing a grand set, which included many lovely seedlings; second, Mr. T. Carlile, and third, Mr. T. Bones.

For twelve distinct varieties, three spikes of each, Mr. T. Bones was awarded the first prize, his spikes of Mrs. Hargreaves, Clarissa, Rev. Charles Storr and Mrs. H. Kaye being, perhaps, the best; while the premier award in the class for six varieties, distinct, three spikes of each, was won by Mr. T. Carlile, who had a grand set in Purple King, The Alake, Fair Lady, Lady Prince, Blue Boy and Lodden Guard.

NON-COMPETITIVE.

A quite attractive group of Delphiniums was set up by Messrs. KELWAY AND SON, good sorts included in their exhibit being Knight of Somerset, Quakeress, Geraldine Kelway, Dr. Lodwidge, Locarno, Cecil Henderson and Monarch of All.

In Messrs. BAKERS' group were good spikes of Edwin Beckett, King of the Delphiniums, Lady Faire, Othello, Mrs. H. Kaye, and others; while Mr. G. G. WHITELEGG included such charming sorts as Glory, Queen Wilhelmina, Harry Smeatham, Yvette Guilbert, Lord Lansdowne and Mrs. H. Kaye in his choice collection. Messrs. TUCKER staged a small group of the brilliantly coloured Blue Bird.

FIRST CLASS CERTIFICATES.

Delphinium Mrs. Hargreaves.—An enormous spike, about two and-a-half feet long, of large, semi-double flowers, the outer petals of which are electric Gentian-blue, and the inner ones pale mauve.

D. Hunsdon Dell.—A grand variety, with large, solid spikes of flowers, the wrinkled petals being rich blue, flecked with mauve. These two varieties were shown by Mr. T. BONES.

D. Lady Emsley Carr.—A tall, compact spike of light blue, semi-double, black-centred flowers. Very charming.

D. Lady Eleanor.—This lovely Delphinium has semi-double, very large flowers, which, when fully open, are soft blue, shaded with mauve; the petals are attractively waved.

D. Blue Gown.—A tall, open spike of large, reflexed, semi-double flowers, bright Gentian-blue, shaded with mauve.

D. Lady Bath.—An unique Delphinium, with very double and symmetrical flowers, the mauve petals being edged with electric blue. The flowers are carried on slender, wiry stems and the whole make up a very attractive inflorescence. This, and the above three Delphiniums, were shown by Messrs. BLACKMORE AND LANGDON.

AWARDS OF MERIT.

D. Mrs. Paul Nelke.—A close, rather slender spike of vivid, rich blue and white-edged, semi-double flowers. Shown by Messrs. BLACKMORE AND LANGDON.

D. Lady Elizabeth.—A large, compact spike of pale mauve and rich, bright blue flowers, flattened, and reflexed at the margins, with dark centres. Shown by Messrs. BLACKMORE AND LANGDON.

D. Pompadour.—A massive, very compact spike of medium-sized flowers, vivid, rich blue shaded with mauve. Shown by Messrs. HEWITT AND CO.

NATIONAL ROSE.

JULY 5 AND 6.—The Royal Hospital Grounds, Chelsea, divested of the kiosks along the Main Avenue, presented an unaccustomed appearance to the flower show visitor on the occasion of the Summer Show of the National Rose Society. In place of the multifarious exhibits of garden sundries which, at the R.H.S. Show, met the eye, was the placid restfulness of the arching green trees over the broad, gravelled drive—a fitting introduction to the glorious summer Roses which filled the tents. Although the large marquees were not entirely filled to capacity, there were many more blooms on view than the inclemencies of the season would have led the visitor to expect, and most of the countless Roses were of excellent quality. On the first day of the show, the elements were none too kind, even though rain which threatened, passed Chelsea by. But a veritable southerly gale sprang up, which, in this usually sheltered spot, tested the tents severely, and brought clouds of dust, some of which disfigured the lovely blooms. But, happily, this was not until comparatively late in the day, and after our Queen had delighted all rosarians by making a long and interested inspection of the many exhibits.

Although there was a slight uniformity in their arrangement, the large trade groups were very handsome, and contained masses of delightful and often delicious blooms. Fragrance was decidedly one of the features of a great show, and despite the dismal ones, many of the present-day Roses do emit a most appreciable and pleasant perfume. For some reason, which, at the moment, is not altogether clear, the amateurs' Roses certainly seemed to be more fragrant than those shown by trade growers. The competition in the amateurs' classes was so good that it must have pleased the Council of this flourishing Society. As ever, the new Roses were the centre of attraction to many visitors, who were content to await their turn in a considerable queue to inspect the nearly seventy novelties. Exercising a wise restraint, the Council awarded only three Gold Medals and four Certificates of Merit. The arrangements all worked with their accustomed smoothness, indicating thoughtful, efficient organisation and the many eager, waiting members and visitors were admitted well on the advertised time.

GOLD MEDALS.

Aureate.—A very beautiful H.T. variety which is recommended for all purposes and its appearance suggests full warranty for the claim. It is a fully double, rich yellow Rose, lightly warmed with pink in the heart, and well set on purplish stems. The foliage is good and the blooms have a pleasing fragrance. Shown by Messrs. ALEX. DICKSON AND SONS.

Elizabeth Arden.—This shapely, white H.T. Rose received a Certificate of Merit at the Saltaire Show, and now, deservedly, won the highest award. The white is relieved by light pink tinting on the buds and outer petals, and the young foliage is purplish. Many of the blooms had a distinct, long, leafy calyx, and they possess a slight, refreshing Tea fragrance. Shown by Mr. GEORGE PRINCE.

Gladys Benskin.—This Gold Medal Rose did not impress us quite so favourably as the others. It is a large, full H.T. bloom which loses form when mature. Under canvas the colour seemed to be a pinkish-mauve with a golden base to the petals. It is the most fragrant of the three varieties. Shown by Messrs. ALEX. DICKSON AND SONS.

CERTIFICATES OF MERIT.

Mrs. H. G. Johnston.—A very desirable exhibition H.T. Rose, fully double and of first rate form. It appears to be of sturdy robust habit. The broad, substantial petals are coloured rich pink, and the stems are tinted with purple. Shown by Messrs. BEES, LTD.

Peter Pan.—A good garden Rose of the same size and type as Emma Wright, from which it is stated to be a sport, and to be "very perpetual." The colour is a little variable, but generally seemed to be salmon-coral. Shown by Messrs. WHEATCROFT BROS.

Trigo.—A pleasing H.T. Rose which is recommended for all purposes. The shapely flowers are fully double and of rich deep yellow colour with a golden-salmon heart to the blooms. The buds and the outsides of the petals are tinted with purple. Shown by Messrs. ALEX. DICKSON AND SONS.

Crimson Glow.—This is a vigorous, climbing hybrid Wichuraiana Rose. The flattish flowers, which are borne in goodly clusters, are semi-double and of red colour, with a short, white line at the base of each petal. It should be a good garden variety. Shown by Messrs. CHAPLIN BROS.

OTHER NEW ROSES.

As we have stated, there were nearly seventy new seedling Roses submitted for award. Their quality generally was distinctly higher than the relatively few awards might indicate, and while the others did not gain any honours on the present occasion, the majority were well worthy of examination and, often, a certain amount of admiration. Some of the new Roses, notably George Howarth, Marion Horton, Rose Berkeley, Mrs. Sam McGredy, Mrs. S. Paton and Portadown, have already received the Certificate of Merit, and their appearance on the present occasion fully justified that honour, but did not suggest any promotion. Among the others, Mrs. J. D. Russell, a delicious, deep crimson H.T. variety, suggestive in type of the ever-popular General McArthur, should be a valuable garden Rose. It was shown by Messrs. BEES, LTD. Canary, shown by Messrs. ALEX. DICKSON AND SONS, will also surely be seen again. It is a medium-sized H.T. bloom of ideally good shape, clear golden yellow in colour, with rose-pink flushing on the outsides of the petals, and possesses a most refreshing perfume. The blooms were good in all stages and it appears to be valuable for the garden and as a cut flower. Felicia, shown by Mr. H. J. PEMBERTON, is a sweetly-scented garden Rose of pink colour. Attraction, shown by Messrs. ALEX. DICKSON AND SONS, is a rich, golden-yellow H.T. Rose, heavily flushed with rosy-cardinal on the outsides of the petals, and should be a good garden variety.

NURSERYMEN'S SECTION.

The tent devoted to the nurserymen's classes presented an even brighter spectacle than usual, for the Roses, in general, were of very high quality and of remarkably bright and clear colouring, so that the numerous groups entered for the first three classes, and which formed a giant double bank down the centre of the tent presented a brilliant and glowing spectacle.

There were eight entries in the premier class, for the Championship Trophy, which required a representative group of cut Roses on a space forty feet by four feet, and the judges must have had a difficult task in awarding the trophy, which was, however, secured by Messrs. ALEX. DICKSON AND SONS, LTD., who had a grand group of charming and original arrangement. Their lovely blooms were chiefly arranged in decorative baskets of varying size, set at different angles and levels so as to present an informal but very picturesque bank of blooms. In the centre, and half facing each other, were two huge baskets of Edith Nellie Perkins and Flamingo, respectively, other grand varieties arranged in similar receptacles being K. of K., Betty Uprichard, Adele Crofton, Scarlet Glory, Mabel Morse, Lady Inchiquin, Advocate, Shot Silk and Mrs. C. V. Haworth, the general effect being further enhanced by grand pillars of such sorts as Lucie Marie, Clarice Goodacre, Swansdown, Etoile de Hollande, Dame Edith Helen and many others.

Mr. ELISHA J. HICKS was a close second with a magnificent and charmingly arranged display, the blooms in this exhibit, of excellent quality, being arranged chiefly in pillars. There was a double row of these at the back; among the varieties so displayed being Pax, Padre, Christine, Ophelia, Scarlet Glory, Paul's Scarlet Climber and Lady Wakefield, while the front pillars were of shapely blooms of Shot Silk, Mrs. Henry Morse, Mabel Morse and Betty Uprichard. Among good sorts which formed the groundwork were Desmond Johnston, very fine; Hortulanus Budde, Lady Roundway, Angele Pernet, Lady Inchiquin and Ivy May.

The STANWAY ROSE GARDENS, LTD., secured the third prize with a charming arrangement, consisting of arches of such climbers as Emily Gray, Paul's Scarlet Climber, Allan Chandler, and Aviateur Bleriot, in front of which were huge ornamental baskets of Etoile de Hollande, Florence Izzard, Margaret McGredy, Golden Emblem and General McArthur, together with vases and bouquets of many other lovely sorts.

The fourth prize was shared by Messrs. WATERER, SONS AND CRISP, LTD., and Mr. J. H. PEMBERTON, both of which firms had very charming displays. The former had huge sheaves of brilliant blooms of Paul's Scarlet Climber, Independence Day, K. of K., Etoile de Hollande, Elsie Poulsen, Scarlet Glory and others as a background to huge circular bouquets of Mrs. Henry Bowles, Mrs. Herbert Stevens and Mrs. Henry Morse, and large ornamental baskets of Violet Stevenson and Mabel Morse, with a host of other grand varieties. The chief features in Mr. J. H. PEMBERTON's group were the tall sheaves of Seagull, Mary Wallace, Paul's Scarlet Climber, Havering Rambler and Papa Gouchalt at the back; lovely baskets of I. Zingari and Bernice, and grand vases of Anne, Golden Emblem, Lemon

Pillar, Los Angeles, Madame Butterfly, Dorina Neave, Lady Inchiquin and Ophelia.

Messrs. Benjamin R. Cant and Sons, Ltd., Messrs. Frank Cant and Co., and Messrs. Chaplin Bros. Ltd., also staged exhibits in this class. The first-named firm had handsome arches of Francois Juranville, Paul's Scarlet Climber and Emily Gray; large sheaves of Cupid, Climbing Madame Butterfly, Lemon Pillar and others, with baskets and vases of such grand varieties as Hortulanus Budde, Shot Silk, Mrs. Beatty, Independence Day, I. Zingari, Golden Gleam, Christine, etc. Messrs. Frank Cant and Co., Ltd. had a lovely basket of Golden Gleam, and pillars of Emily Gray, Pax, Mrs. Henry Morse, Etoile de Hollande, Hortulanus Budde and Shot Silk, together with many other sorts in vases, while Messrs. Chaplin Bros., Ltd., had very floriferous pillars of climbing sorts, notably Chaplin's Pink Climber, Royal Scarlet and Paul's Scarlet Climber, at the back, and in front of these were masses of Lady Forteviot, Mrs. Beatty, Ruth, Mrs. E. J. Hudson and Lemon Pillar, these being separated by pillars of grand blooms of Windsor, Emma Wright, Princess Elizabeth of Greece, Waltham Cross, Lady Helen Maglona and Lady Inchiquin.

In the competition for the De Escofet Memorial Cup, as in the previous class, the exhibits were of a very high standard. The trophy was awarded to Messrs. R. Harkness and Co., who had a lovely central arch of brilliant blooms of K. of K., surrounding a mass of Mabel Morse. There were lovely pillars of Lady Inchiquin, Lord Charlemont, Golden Emblem, Christine, Betty Uprichard and Mrs. Henry Morse, and large baskets of Rev. F. Page Roberts, Doris Trayler, Patience, and Lady Roundway, other grand sorts displayed being I. Zingari, Mrs. Beatty, Gwynneth Jones and Madame Butterfly.

The second prize in this class was won by Mr. George Prince, who had a central mass of the *Daily Mail* Scented Rose, with a grand basket of Mrs. Henry Morse above it. The background of the group was of pillars of Paul's Scarlet Climber, Mary Wallace, Allan Chandler and others; there were corner pillars of I. Zingari and Dainty Bess, and lovely baskets of Gwynneth Jones, Norma Lambert, Shot Silk, Mrs. Herbert Stevens and Lady Inchiquin, with many others. The Dowty's Rosery was third and Messrs. D. Prior and Son, fourth, the former firm showing lovely pillars of Hortulanus Budde and Shot Silk, and good vases of Ivy May, Captain R. Clark, Angele Pernet, Padre, I. Zingari, Etoile de Hollande and Golden Emblem.

In Class 3, for the Norman Rogers Challenge Cup, Mr. J. Mattock was placed first with a charming group in which the varieties Mrs. Oakley Fisher, Vesuvius, K. of K., Mabel Morse and Mrs. Henry Morse were of exceptional quality; second, Messrs. Jarman and Co., who had good blooms of Betty Uprichard, Angele Pernet, Shot Silk, Hortulanus Budde, Lord Charlemont and others; third, Mr. D. Long, who showed Hortulanus Budde, Lady Inchiquin, Golden Ophelia and Mrs. Henry Bowles in grand condition. Other exhibitors in this class were Messrs. A. J. and C. Allen, Messrs. E. Paul and Co., Messrs. A. Warner and Son, and Messrs. Morse Bros.

There were only two exhibitors in the class for seven baskets of cut Roses, seven distinct varieties, and these were Mr. J. Mattock and Mr. H. Drew, who were awarded the first and second prizes, respectively. The former exhibitor displayed a grand set, his best varieties being Betty Uprichard, Angele Pernet, Louise Prince, Golden Emblem and Shot Silk.

In the class for three baskets of cut Roses, three distinct varieties, thirty-six stems of each, there were five entries, three of which, however, were disqualified as being not according to schedule. Messrs. D. Prior and Son secured the premier award with lovely baskets of Lady Pirrie, Madame Edouard Herriot and Col. Oswald Fitzgerald; second, Messrs. D. Longley and Sons, who showed Colonel Oswald Fitzgerald, Golden Emblem and Norman Lambert.

Messrs. G. Longley and Sons were first for three baskets of Polyantha Roses, distinct, with Kirsten Poulsen, Else Poulsen and Diana, very fine; second Messrs. W. Cutbush and Son, Ltd., with Frank Leddy, Sunshine and Golden Salmon; and third, Messrs. D. Prior and Son, who showed Alice Amos, Else Poulsen, and Kirsten Poulsen.

There were six exhibits in the competition for the A. C. Turner Cup, for vases of thirty distinct varieties, the trophy being awarded to Mr. J. Mattock, whose best vases were of Mrs. G. A. van Rossem, Golden Emblem, Princess Elizabeth of Greece, Christine, Shot Silk, Angele Pernet, Betty Uprichard and Doris Trayler. Messrs. A. Warner and Son were second, and they had grand vases of Betty Uprichard, Captain Ronald Clark, Golden Gleam, Patience and I. Zingari; Mr. G. Lilley and Mr. F. Spooner shared the third prize.

As usual, the championship for exhibition blooms, for The China Trophy, was very popular, and some grand sets of blooms were displayed, Messrs. Frank Cant and Co., Ltd., securing the trophy. Perhaps their best blooms were of Lady Inchiquin, Golden Emblem, Nellie Parker, Gwynne Carr, Mabel Morse, J. C. Thornton, Augustus Hartmann, Captain F. Bald and Mrs. Henry Morse. In their second prize exhibit, Messrs. Benjamin R. Cant and Sons, Ltd., included grand specimens of Doris Trayler, Colonel Oswald Fitzgerald, Miss Willmott, Edith Cavell, Mabel Morse, Lady Inchiquin and William Kordes; while the best in the third prize set, by Mr. W. Slinger, were Florence Forrester, Lady Inchiquin, Portadown, Mrs. Bertram Walker, Mrs. Henry Bowles and The General. Messrs. G. Longley and Sons were awarded the fourth prize.

In the competition for the John Hart Memorial Cup, Messrs. R. Harkness and Co. were first with a set in which Mrs. Henry Morse, Mabel Morse, Lady Inchiquin, Red Star, Rose Marie, Lady Henry Maglona and Bessie Chaplin were outstanding; second, Messrs. Jarman and Co., who had grand specimen blooms of Mabel Morse, Mrs. Elisha Hicks, A. Cook, Mrs. Henry Morse and A. Hemsley; third, Mr. Elisha J. Hicks, who included The General, Lady Inchiquin, Mrs. Beatty, Louise Crinner and Colonel Oswald Fitzgerald.

Messrs. Jarman and Co. were awarded the D'Ombrain Cup, for twenty-four blooms, distinct, and they showed wonderful specimens of White Maman Cochet, Rev. C. Hall, W. R. Smith and Mrs. H. Hawksworth, Messrs. G. Longley and Sons being placed second, and Mr. H. Drew, third; while the Kilbee Stuart Memorial Cup, for twelve blooms of new Roses, distributed since January 1, 1925, was awarded to the Dowty's Rosery, who showed good blooms of Lady Florence Strong, Mrs. A. R. Barraclough, Dame Edith Helen, White Ensign, Mrs. Beatty and Ellen Terry. Messrs. D. Prior and Son were second, their set including Lady Helen Maglona, Dame Edith Helen, Arthur Cook and Desmond Johnson; third, Messrs. Benjamin R. Cant and Sons, Ltd.

Messrs. Benjamin R. Cant and Sons, Ltd., were first for twelve blooms of any new Rose distributed since January 1, 1925, with good blooms of Mrs. Beatty; second, Dowtry's Nursery, showing Dame Edith Helen, and third, Mr. G. Prince, who had good blooms of the *Daily Mail* Scented Rose. Mr. J. Mattock showed the best basket of cut blooms of a H.T. Rose, his variety being Bessie Chaplin; Messrs. G. Longley and Sons being placed second, with George Dickson, and Messrs. J. Jefferies and Son, Ltd., third; while Messrs. Jarman and Co., showing White Maman Cochet, were first for a basket of a Tea or Noisette Rose; second, Mr. H. Drew, with Mrs. Foley Hobbs; third, Mr. G. Prince; and Messrs. A. Warner and Son, Ltd., secured the Brayfort Challenge Cup, for one basket of cut Roses of an H.P., H.T., Tea, or Noisette variety, with moderate blooms of Margaret McGredy. There was only one exhibit in Class 16, for a basket of an exhibition or decorative Rose not yet in commerce, and this was by Mr. J. H. Pemberton, who showed Rebecca, of good form, with pale pink petals, rose coloured on the reverse side.

The Nickerson Prize, which is offered annually for the best new Rose of British or American origin sent out between June, 1922, and December, 1927, was again very popular. There were twenty-four stands of admirable Roses in competition for the valuable cup which was awarded to Messrs. Dobbie and Co. for their variety Duchess of Athol (p. 481, Vol. LXXXV), which recently received the R.H.S. Award of Merit. The other varieties of merit included Charles P. Kilham, N. A. Bilney, Bedford Crimson, Elizabeth of York, Patience, Golden Gleam, Lady Roundway, Mrs. Beatty, Shot Silk, Dame Edith Helen and J. C. Thornton.

AMATEURS' CLASSES.

In nearly all the classes of the Amateurs' Section the quality of the blooms reached a high standard of excellence, and the competition was very good. The Champion Trophy, for a representative group of cut Roses, was won by Mr. G. Marriott, Carlton, Notts., which was an admirable group set up in the best exhibition style. His chief varieties were Mrs. A. R. Barraclough, Souvenir de G. Pernet, Rev. Page Roberts, Emma Wright and Bessie Morse. Dr. C. R. Turnbull, Colchester, was second, and Mr. J. N. Hart, Potters Bar, was third, with the most representative exhibit in the class. Generally too many H.T. varieties were included. There were only two exhibits in the class for a smaller group, and here, again, H.T. varieties predominated. Mr. W. H. Pickford, Gloucester, was first, showing good vases of Ophelia, Golden Emblem and Etoile de Hollande; while Mr. H. R. Darlington, Potters Bar, was placed second, with a bright and graceful exhibit.

The Decorative Roses in baskets were of good quality and very attractive. The best two baskets were shown by Mr. G. Marriott, who had Betty Uprichard in excellent condition. With fragrant blooms of General McArthur, Mr. C. Dixon, High Wycombe, was first for one basket, and with very good specimens of Lemon Pillar, Mrs. L. Tilley, Northwood, was similarly successful in the class requiring twelve stems.

Mr. A. N. Rogers, East Putney, had the best basket grown within seven miles of London Bridge; and Mr. W. E. Moore, Ickenham, was the most successful of those who grow their blooms unaided. Mrs. P. Gordon Brown, Wrotham, won first prize in the novices' class

The Roses in vases were fresh and good. Mr. A. C. Turner, Woking, showing Sunstar, Betty Uprichard, Scarlet Glory and other good varieties, won the Mattock Cup; Mr. G Marriott was second with twelve good varieties. Mr. A. L. F. Cook, Hayes, Middlesex, had six exceedingly good varieties, and won the Holroyd Cup; while Mr. H. E. Cribb, Northwood, had the best six vases of climbing varieties. In the novices' class for climbing Roses, Mrs. M. Hancock, St. Albans, was first. Mr. E. H. Pleasance, Cambridge, set up an attractive set of six climbing varieties and won the first prize.

The exhibition Roses in boxes were highly creditable to the growers. Mr. F. H. Fieldgate, Colchester, won the Edward Mawley Cup with twenty-four admirable blooms, which included Mr. George Marriott, Mrs. Henry Bowles, The Queen Alexandra Rose, Mabel Turner and Hugh Dickson. Dr. Turnbull, in his second prize collection, had W. H. Walsh, J. G. Glasford, Bessie Chaplin and Mrs. Beatty, of very good quality. Mrs. W. J. Thorpe was third.

The best twelve specimens were staged by Mr. J. E. Rayer, Worcester, who included Mrs. R. C. McClure, Bessie Brown and Mrs. Henry Bowles; while Mr. F. H. Fieldgate was second. Mr. C. H. Rigg, St. Albans, showed the best two baskets of exhibition Roses. In Division B., Mr. H. F. Spicer, Hitchin, was the best of many exhibitors of twelve blooms in competition for the Lamplough Cup, and Mr. E. W. Turner was second. In Division C., the chief prize-winner was Mr. E. T. Gamm, Tankerton, whose twelve blooms were of considerable merit.

Although a few showed signs of the stress of the weather, most of the Tea and Noisette blooms were very shapely and beautiful. There were four exhibits of twelve varieties, and the trophy was won by Mr. W. E. Moore, whose best blooms were Mrs. Herbert Hawkesworth, Mrs. Campbell Hall, Mrs. Foley Hobbs and Auguste Comte. Mr. E. W. Turner was a good second, and he included Mrs. Foley Hobbs, Maman Cochet and Lady Plymouth, of fine quality. The best six blooms were staged by Mr. E. T. Gamm, who had Margaret Sharman

Crawford, Mrs. Edward Mawley and Myles Kennedy, in beautiful condition. Mr. L. Purden, Isle of Wight, had six exceedingly fine exhibition blooms in the class for amateurs who have never won a first prize with this type. His very best were of Mrs. E. J. Hudson, J. G. Glassford and Mrs. Foley Hobbs.

In the Metropolitan Class, Mr. W. Slocock, Carshalton, was the chief prize-winner, and Mr. A. N. Rogers, East Putney, was the most successful of growers residing within five miles of Charing Cross.

The Artistic Classes filled a large tent with very attractive arrangements. There was more variety than of late in the treatment of the Dinner Tables, and this added greatly to the attractions of the section. In the Nurserymen's Section, Mrs. M. Archer, who used Dainty Bess, was first in the Dinner Table class. Miss Tixdall won all the prizes in the bowl, vase and basket classes with artistic arrangements. In the amateurs' classes, Mrs. Courtney Page, Haywards Heath, added to her many successes by winning first prizes for a Dinner Table Decoration of Madame Butterfly in the open amateurs' class; for one of Emma Wright and Angele Pernet in the class for amateurs who grow their own Roses, and was second with Dainty Bess in the Table Class, where only single varieties may be used. In this class Miss Newsham, Liverpool, was first with the same variety. Miss Woolven had the best basket of Roses, and Mrs. Cooper was first with a vase of Roses.

ANSWERS TO CORRESPONDENTS.

Cucumber Stems Diseased.—*A. P.* The Cucumber stem was affected with canker, the causal organism of which is a bacterium, Bacillus carotovorus. Cucumbers at the period of ripening are physiologically weakened and susceptible to attack when the soil is very wet around the base of the stem. Avoid watering around the stem of the plants. Dust the bases of the stems at intervals throughout the season with a mixture of ten parts dry slaked lime, three parts freshly ground copper sulphate, and three parts flowers of sulphur.

Gloxinias and Tomatos unhealthy.—*T. J. C.* The Gloxinia and Tomato foliage is scorched and is due to the presence of sulphurous fumes in the atmosphere. There is no sign of damage by any pathogenic organism. The brown mottling on the lower surfaces of the Gloxinia leaves is due to the presence of many immature Thrips which may be seen along the mid-rib.

Herb in an old Garden.—*E. W. E.* The two leaves you sent were those of Fennel (Foeniculum vulgare). It is a herb, and has been used for a great variety of purposes from time immemorial. For home use it was formerly boiled with fish. The leaves at present are served with salmon to correct its oily character and make it more digestible. The leaves are also cut up and put into sauce, to be eaten with boiled mackerel. The seeds are used for flavouring, while an oil is distilled from them and used in the making of cordials. The leaves are also used for garnishing, and in Italy and France for flavouring salads; also in sauces served with puddings, when finely chopped. In Italy the young stems are employed in soups, and also eaten raw as a salad. Fennel is also used for scenting soaps by means of the distilled oil, and is employed in medicine as well.

Tomato Fruit Cracking.—*S.* The cracking of the Tomato fruit is probably due to faulty watering at the time of setting. The fruit bears no signs of fungal injury. It is impossible to suggest a reason for the curling of the foliage unless we are able to examine the entire plant.

Communications Received.—M. T.—W. R.—W. G.—E. G. M.—S. R.—G. L.—A. D.—S. A.—W. A.—C. P.—A. M. R.—F. Y.—E. T.—A. W. W.

MARKETS.

COVENT GARDEN, Tuesday, July 9, 1929.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Crassulas, per doz.	24 0–27 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0
Fuchsias, per doz.	12 0–18 0
Heliotropes, per doz.	12 0–15 0
Hydrangeas, white, per doz.	24 0–30 0
—pink and blue, per doz. ...	24 0–36 0
Lilium longiflorum, per doz.	18 0–24 0
Marguerites, white, per doz.	12 0–15 0
Nephrolepis, in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Roses, Polyantha, per doz. ...	15 0–18 0
Verbenas, pink and scarlet, per doz.... ...	9 0–15 0
Viscarias ...	9 0–15 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Achillea, white, per doz. bun.	3 0—5 0
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	5 0—6 0
Asparagus plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	1 6—2 6
—short „	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 6—2 6
—short „ ...	1 0—1 3
Asters, white, per doz. bun.	9 0–12 0
—mauve, per doz. bun. ...	8 0–10 0
—pink, per doz. bun.	8 0–10 0
Carnations, per doz. blooms	1 0—4 0
Clarkias, per doz. bun.	4 0—5 0
Coreopsis, per doz. bun. ...	1 6—2 6
Cornflowers, blue, per doz. bun.	1 0—1 6
—pink, per doz. bun.	1 0—1 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun.	1 6—2 6
Delphinium, blue, per doz. spikes	2 0—4 0
Ferns, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	6 0—9 0
Gaillardia, per doz. bun. ...	3 6—4 0
Gladiolus, Blushing Bride, per doz. bun. ...	9 0–12 0
—The Bride, per doz. bun. ...	9 0–12 0
—Peach Blossom, per doz. bun.	9 0–12 0
—Scarlet, per doz. spikes ...	3 6—4 0
—primulinus, per doz. spikes ...	2 0—3 0
—large flowered, per doz. spikes	3 0—4 0
Gypsophila elegans, white, per doz. bun.	3 0—4 0
Heather, white, per doz. bun.	18 0–24 0
Iceland Poppies, per doz. bun.	2 6—3 0
Iris, Spanish, blue, per doz. blooms	0 9—1 0
— — yellow, per doz. blooms	0 9—1 0
Larkspur, mauve and pink, per doz. bun. ...	5 0—6 0
Lilium longiflorum, long, per bun. ...	2 0—2 6
— — short, per doz. blooms	1 6—2 6
—speciosum album, long, per doz. ...	4 6—6 0
— — — short, per doz. ...	2 6—3 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0
Marigolds, per doz. bun. ...	4 0—6 0
Myrtle, green, per doz. bun.	1 6—2 6
Nigella, blue, per doz. bun.	6 0—8 0
Orchids, per doz.	
—Cattleyas ...	18 0–30 0
Paeonies, pink, 6's, per doz. bun.	12 0–15 0
—white, per doz. bun.	12 0–15 0
Roses, per doz. blooms—	
—Columbia ...	3 0—4 0
—Richmond ...	2 6—3 6
—Yellow ...	2 0—3 0
—Molly Crawford	2 0—2 6
—Butterfly ...	2 0—3 6
Saponaria, white and pink, per doz. bun. ...	3 6—4 0
Scabiosa caucasica, per doz. bun. ...	4 0—5 0
Smilax, per doz. trails ...	4 0—5 0
Statice, mauve, per doz. bun.	9 0–15 0
—Suworowii, per doz. bun.	6 0–12 0
Stock, double white, per doz. bun.... ...	4 0–12 0
—double pink, per doz. bun.	9 0–12 0
—mauve, per doz. bun. ...	9 0–12 0
Sweet Peas, various, per doz. bun.... ...	4 0—6 0
—special, per doz. bun. ...	9 0–15 0
Sultans, white, per doz. bun.	4 0—6 0
— mauve, per doz. bun. ...	4 0—6 0
—yellow, per doz. bun. ...	6 0—7 0

Remarks.—All outdoor blooms have shown a slight increase in quantities, and prices are somewhat easier. Carnations are arriving in large quantities and prices range from 1s. to 4s. per dozen; the best sorts on offer are Delight, Favourite, Iver Pearl, Mavis, Lady Northcliffe, Mrs. Hemus, George Allwood, Lassie, Laddie, Eileen Lowe, Mrs. Ward, Wivelsfield Pink and Salmon Seedling (pink), Wivelsfield White, Enchantress and White Pearl (white); Aviator, Brilliant, Spectrum, Edward Allwood and Our Prince (scarlet); Enid, Mrs. Cobb and Topsy (crimson). Other choice sorts are Sunstar, Saffron, Circe, Royalty, Mikado and several fancy varieties in apricot and yellow, purple and mauve shades. Among Roses, the best grades have been somewhat shorter owing to the colder weather of the past week. White Pinks, Spanish Irises and Paeonies are practically finished for this season. The newest arrival in white blooms is Achillea The Pearl; white, mauve and pink Asters arrived in excellent condition this morning. More white, blue and pink Statice sinuata is now available and in much better condition. All Delphiniums are more than sufficient for present requirements. All Gladioli are similar to last week's quotations and continue to arrive in excellent condition; they now include some mauve and yellow varieties. All Liliums showed a tendency to be easier in price this morning as more white and pink L. speciosum were offered.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—Worthing, finest, per lb.	0 10–1 3
—Guernsey ...	0 9—1 3
Beet, per bushel	4 0—5 0
Cabbage, Spring, per doz. ...	1 6—2 3
Carrots, French, per doz. bun.	6 0–10 0
Cauliflowers, per doz.	3 0—5 0
Endive, French, per crate, 18's and 24's ...	4 6—6 0
Lettuce, 24's, round ...	2 0—2 6
—Cos	2 0—4 0
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	1 9—2 6
—broilers ...	1 6—1 9
Parsnips, per cwt. ...	4 0—5 0
Peas, English, per bushel ...	4 0—6 0
Potatos—	
—Jersey, per cwt.	5 6—6 6
—St. Malo ...	4 6—5 0
—English, per bushel ...	4 0—4 6
Tomatos, English, per box of 12 lbs.—	
—pink	5 6—6 6
—pink and white	5 6—6 6
—white ...	5 0—5 6
—blue	4 6—5 0
—Guernsey ...	5 6—6 0
Turnips, French, per doz. bun.	8 0–10 0

Remarks.—A considerable volume of produce is passing through Covent Garden Market just now, and the general condition of trade here may be considered good. The demand in the choice fruit section maintains firm values all round for the Peaches, Nectarines, Melons and Figs available. So far as Grapes are concerned, supplies are comparatively heavy, and although prices are slightly easier, the supplies move out well. Cherries have met a good demand, but their condition has been somewhat variable, and really good Cherries are not plentiful. Strawberries have had a good reception from buyers throughout the week and values have remained firm. Raspberries are selling freely at comparatively good prices. Gooseberries are on the scarce side, and green berries sell well, but those showing colour are not so popular. Arrivals of Tomatos are heavier, and while there is some slackening in prices, these are still at a level which is probably bringing some satisfaction to the producers. Cucumber quantities are still heavy, but are showing some falling off as compared with a short time ago, and quotations are lower. Mushrooms are not quite so plentiful and there are signs of an improvement in prices. Hothouse Beans continue to do well, but some marks show signs of the end of the season. There have been a few outdoor Beans on the market this week and these have sold well. Peas still find a weak market; what demand there is is mainly for finest quality, forced Peas being difficult to sell even at low figures. There is a shade of improvement in the trade for Potatos, but even so, the general price level is not good.

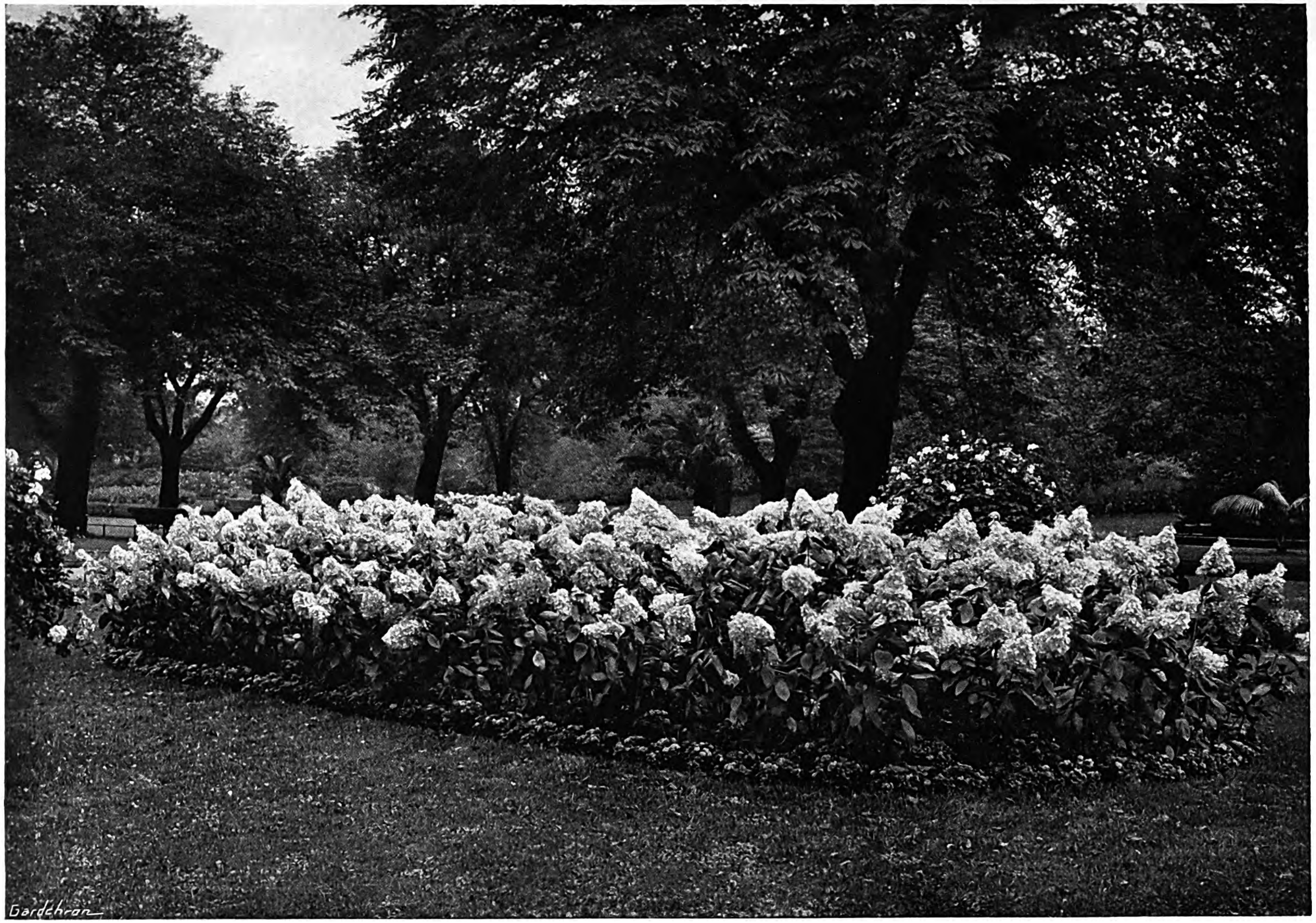
GLASGOW.

Cut flowers were very cheap last week, when price movements again favoured buyers. Irises in 6's were worth from 2d. to 5d.; Sweet Peas, 4d. to 6d. per bunch; specials, 8d. to 1s.; Carnations, 1s. to 2s. per dozen: pink Roses (Madame Butterfly and J. C. Mensing), 1s. 6d. to 2s. 6d.; red (Richmond), 6d. to 1s. 6d.; yellow (Roselandia), 1s. 6d. to 2s.; Lilium longiflorum, 2s. 6d. to 3s.; Gladioli, 6's, 1s. 3d. to 1s. 6d.; 12's, 1s. 6d. Calendula, 1d. to 2d. per bunch; Sweet Williams, 3d.; Gypsophila, 1d. to 3d.; Cornflowers, 1d. to 2d.; Smilax, 1s. to 1s. 6d.; Asparagus, short, 6d. to 9d.; flat, 9d. to 1s. 3d.; and trails, 1s. to 1s. 6d.

Strawberries dominated the fruit market, and the daily supplies found a ready market at firm prices, Scotch making from 10d. to 1s. 6d. per lb., and English, 10d. to 1s. Home Black Currants averaged 10d. per lb.; foreign, 6d.; Peaches, 9d. to 1s. 3d. each; Cherries, 8d. per lb.; Plums (Californian), 16s. to 18s. per tray; Apricots, 8s. per crate; Pineapples, 3s. 6d. each; Gooseberries, 4s. to 5s. per sieve; Pears, 9s. per tray; Grape Fruits, 40s. to 42s. per case (80's and 100's); New Zealand Apples, 22s. per case; Oranges (Californian Pure Gold), 25s. (216's).

In the vegetable section Tomatos sold at 8½d. per lb.; Cucumbers, 5s. to 6s. per dozen; Cauliflowers, 5s. 6d. to 6s.; Lettuces, 1s. 9d. to 2s. per box of 15 and 18; Peas, 3d. per lb.; Mushrooms, 2s.; Carrots and Turnips, 10d. to 1s.; and Asparagus, 2s. per bunch.

A TOO CROWDED ADVERTISEMENT WEARIES THE EYE; ONE WORD QUICKLY PERCEIVED IS BETTER THAN TWO NOT PERCEIVED AT ALL.



HYDRANGEA PANICULATA *var.* GRANDIFLORA IN REGENT'S PARK.

THE

Gardeners' Chronicle

No. 2221.—*SATURDAY, JULY* 20, 1929.

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SUPPLEMENT PLATE.

Hydrangea paniculata var. grandiflora in Regent's Park.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 63·0°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 17, 10 a.m. (Greenwich time). Bar. 30·1. Temp. 74°. Weather, fine and warm.

On the Growing of Onions.

MARKET gardeners do not produce sufficient Onions to supply the demands of this country, which, in consequence, finds itself importing annually well nigh ten million bushels, some half of which comes from Spain, a quarter from Holland, and much of the remainder from Egypt. Private gardeners are like unto their market brothers, not infrequently short in their supplies of this excellent vegetable, and therefore we need make no apology in drawing attention to the excellent leaflet No. 264, published by the Ministry of Agriculture and Fisheries, on Onion growing. The yield obtained varies remarkably in the different Onion-growing counties. Lincolnshire (Holland) comes first with seven-and-three-quarter tons to the acre; Kent, Essex and Middlesex have an average of six tons, and Bedford five tons per acre. In all, some 1,500 acres, yielding over 8,000 tons are under this crop, and a like or even larger area is employed for the raising of spring Onions which, of course, are pulled small and bunched green for salading. Although to raise a heavy crop requires no mean cultural skill, the cultivation to produce an ordinary crop is easy enough, provided that attention be paid both to the seed-bed and to weeds. The former must be firm, therefore ground for the crop should be ploughed in the autumn and left rough. Winter may help to consolidate it, and in any case the soil must be well firmed before the seeds are sown. Anyone who will observe the delicate gymnastics practised by the seedling in extricating itself from the seed-case will appreciate the reason why the small seeds needs must be sown in a firm and fine seed-bed. Next in importance among cultural operations is weeding. The Onion germinates quickly, and if it is to grow on unchecked, it must be saved from bootless competition both by early weeding and early singling. Less within the control of the cultivator, but of no less importance to the crop, is the kind of seeds which are sown; and in stating this we do not refer to the variety selected, but to the country from which the seeds are obtained. The vagaries of our climate make Onion growing for seed purposes precarious, and hence much of our seed is imported. In former years large quantities came from the south of France, but now, unfortunately, we have to look to California for supplies. We write unfortunately, because, according to Leaflet No. 264, Californian Onion seeds produce plants which mature a fortnight earlier than do those grown from English or European seeds, and, needless to state, the earlier maturity means a lighter crop. Onion growers often prefer transplanting to sowing, *in situ*, and this for several reasons. Transplanting admits of economy in seeds, helps to forfend attack by Onion fly and mildew, and conduces to higher yields. For transplanting, seeds are sown in frames or under glass, in gentle heat, the seedlings pricked out into boxes or frames, hardened off and transplanted in the open in April or early May. Giant Rocca and Large White Tripoli may, however, be sown in the open in autumn (September), left to stand over the winter and transplanted into firm ground in the spring. Needless to state, as with all transplantations, the less the injury done to the roots the more success attends the operation. As to manuring: Farmyard manure supplemented by artificial fertilisers is essential for high crop production; each acre should receive twelve tons of farmyard manure, four cwts. to six cwts. of superphosphate, two cwts. of sulphate of potash, and two cwts. to three cwts. of sulphate of ammonia; the last given in two dressings, the first of which should be applied immediately after thinning. Of varieties to sow there is a wide choice. The leading seed firms have taken endless trouble to produce varieties reasonably true to type, and in this somewhat difficult task they have been successful. So that, although not a few commercial stocks give bulbs of by no means uniform shape or colour, others of the selected strains are sufficiently true to name and type. One subject which might have received a line or two of comment is that of bolting, to which habit Onions are very prone. Gardeners who find Onions beginning to flower prematurely, as is often the case during a dry summer, may save the bulbs by bending down or removing the incipient flower heads.

Flowers in Regent's Park.—Very few of the many thousands of Londoners who visit Regent's Park at this time of the year to seek solace from their labours and shelter from the sun beneath the magnificent Horse Chestnut and other trees, realise fully the vast amount of thought and labour expended by those responsible for the maintenance of a continuously bright display of flowers. That this object is attained, and that thoroughly, may be ascertained by a visit to the park at the present time, while some idea of the high state of cultivation practised may be gleaned from the Supplement Plate, which we present with this issue, illustrating a grand bed of Hydrangea paniculata var. grandiflora in Regent's Park. At the present time the beds on the lawns flanking the grand avenue of Horse Chestnuts are gay with a great variety of flowers; to the left, the long, winding, herbaceous border is a mass of skilfully arranged colour, and to the right, bordering the large banks of shrubs, are bright beds of Delphiniums, Coreopsis, Antirrhinums and other subjects, while not the least among the numerous attractive features are the giant vases filled with pendant and very floriferous Pelargoniums. The beds on the lawns are in most instances, filled with separate subjects, brightest among which at the present time are the Nemesias, Hydrangeas in variety, Astilbe Garnet, Stocks, Clarkia Fire Fly, Viscarias of various colour shades, Lilium longiflorum and L. tigrinum var. splendens, and Godetias, while, later on, the large beds of Dahlias will prolong the floral display in this grand old park well into the autumn.

Captain F. Kingdon Ward.—We are glad and relieved to learn that Captain F. Kingdon Ward has made such a good recovery from his serious illness as to be able to continue his penetration into the fastnesses of North Tonkin in search of rare Orchids and other plants. Many of our readers will remember that, as we reported in *The Gardeners' Chronicle* of June 1, last, Captain Kingdon Ward was taken very seriously ill in a remote and hitherto unknown part of Tonkin, far from medical attention, and with only native bearers.

R.H.S. Awards of Merit to Wrongly-named Plants.—The plant which received an Award of Merit from the Royal Horticultural Society on June 11, under the name Cynoglossum cashmerianum (*Gard. Chron.*, June 15, p. 452), has now been identified as Cynoglossum nervosum, Benth. On June 25, a Rhododendron received an Award of Merit under the name Rhododendron Houlstonii (*Gard. Chron.*, June 29, p. 481). It has since been found that the plant exhibited was really a form of Rhododendron discolor and, as it is not an improvement upon the forms of Rhododendron discolor which have already received awards, the award made on June 25 has been cancelled.

The Hardy Fruit Crops of 1929.—In accordance with our usual custom, we have invited numerous gardener-friends to report upon the amount and condition of the hardy fruit crops in their districts, with the request that the reports be returned to us without delay. We shall be pleased to send forms to any fruit-growing readers who would like to send us reports of the conditions ruling in their areas.

N.R.S. Show of New Roses.—We learn that a large number of entries have been received from all parts of England, Scotland and Northern Ireland for the National Rose Society's exhibition of new Roses, to be held on July 23, in the Royal Horticultural Society's new hall, Greycoat Place, and there would appear to be every prospect of a good display of new varieties.

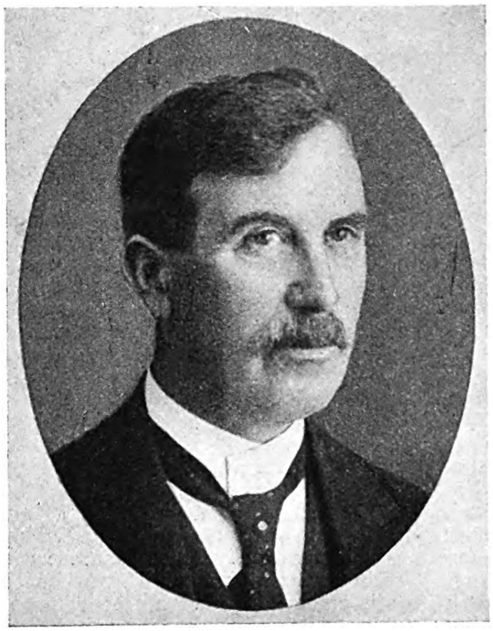
Legacy to a Gardener. — The late Miss Katharine Anne Jackson, of The Manor House, Dawlish, who died on April 22, 1929, left £100 to her gardener, Mr. John Short, if in her employ at the time of her death.

The Shortage of Water.—The Ministry of Health has issued to local authorities a "memorandum on water shortage," and in a covering letter addressed to the Mayors, the Minister states. he "considers it highly important that there should be no delay in taking measures for conserving existing water supplies wherever a shortage already exists or is threatened." The memorandum states that the recorded figures of rainfall for the early months of the year reveal a more pronounced scarcity than at any corresponding period since 1921. Although in a number of districts supplies appear not to be in danger, a continuance of the dry period through the summer months will involve more of the water authorities in shortage or risk of shortage. Also statistics indicate that rainfall for the next few years may continue to fall short of the average. A substantial improvement of supplies derived from surface sources is not to be expected in the near future unless exceptionally heavy rainfalls occur. Many deep-seated water supplies not yet affected may suffer later. Water authorities, therefore, should lose no time in scrutinising their position, with an eye not only to the present emergency, but to possible difficulty in the ensuing years. If existing supplies cannot readily be supplemented, measures should be taken early, even at some inconvenience to the consumer, to conserve them, thus avoiding more drastic restrictions later. The memorandum urges attention to leakages in mains and service pipes, and to defective taps and other household fittings, and recommends direct appeals to consumers to restrict their domestic uses to the more essential needs.

R.H.S. Gardens Club's Annual Outing.—On Saturday, July 13, just before 9 a.m., a party of thirty-one members of the R.H.S. Gardens Club left Wisley by motor-coach and proceeded direct to Ashford, Handcross, the residence of Mrs. Lindsay Smith. Here a tour of the beautiful gardens was made, and the visitors found much to admire, both in the herbaceous borders, which were exceptionally fine, and among the many grand specimen trees and shrubs—the giant Tulip Tree and Araucaria imbricata were specially noted. Before leaving Handcross, which the visitors were loath to do, they were kindly entertained to light refreshments by Mrs. Lindsay Smith, on the lovely terrace, from whence they were able to obtain a grand view of the South Downs. From Handcross the party proceeded to Worthing, where the Annual Meeting, at which Mr. E. A. Bowles was appointed President of the Club for the ensuing year, was held in Mr. J. E. Grant White's office. Lunch was taken at the Arcade Café, after which a number of the members went by motor-coach to Goring-on-Sea, where the gardens of Highdown, the residence of F. C. Stern, Esq., were inspected. The gardens proved a veritable treasure-trove of rare trees and shrubs, and the visitors were able to admire many of the original trees and shrubs raised from seeds collected during recent years in China, many of which have already become popular in gardens. Not only were the trees and shrubs a source of interest to the visitors, but the rock garden and the herbaceous borders, also the Lilies, which are grown well at Highdown, called for a great deal of attention, so that it was with a feeling that much real knowledge in the matter of plants and their cultivation had been gained that the visitors finally left Highdown, after being entertained to tea on the spacious lawn, to return to Worthing whence, after a brief halt in which to enjoy the lighter attractions of this seaside resort, the party returned to Wisley.

Essen and Ruhrland Horticultural Exhibition.—On June 29, in beautiful sunny weather, the long-prepared for and eagerly awaited Horticultural Exhibition was opened at Essen by the distinguished Minister Stegerwald, accompanied by a number of important personages. At the ceremony which preceded the actual opening, a hundred guests were gathered in one of the large halls of the exhibition, and many congratulatory speeches were made. Over 20,000 carrier pigeons were released at a given moment from the grounds, with a greeting to the world at large from the exhibition, and for a few moments after their release the sky was darkened with their fluttering wings. The exhibition is well prepared, and has the merit of being completely finished, a merit not always noticeable in large shows. Moreover, much of the work is of a permanent nature, for the site is to be retained as a public park, and may be used again as an exhibition ground if occasion offers. Although in the grounds there is much to interest visitors, it is a pity that at the opening the succession of indoor exhibition of flowers in season (such an attractive feature at Dresden) had not commenced, the first one, of warm-house and pot plants, being due to commence on July 6. The grounds are well laid out; there is a large lake, with fountains, which is well conceived, and a pleasant and restful terrace with pergolas; but these features badly want completing by well-developed green growth, which is difficult to supply, owing to the fact that the exceptionally cool, dry weather has retarded nearly all the planted growth and hindered the careful plans made beforehand. The Roses especially were very late, but doubtless the warm weather of the last fortnight has brought them on. It is to be hoped so, as Roses comprise the main feature of the second special exhibition, which also includes aquaria and terraria, the latter a feature which will interest English visitors, of which probably there will be a good many. This will last from July 20 to 28, and will be followed on August 3 by a special show of hardy plants, pot plants, Cacti, early fruits and vegetables.

Mr. G. W. Dunsmore.—Mr. Dunsmore, gardener to Albert Hill, Esq., Throstle Nest, Chillow Dene, Bradford, commenced his gardening career in the garden of Brooklands, Holywell Green, Stainland, near Halifax, the residence of Mrs. Shaws, and after spending some months there, where his work was confined chiefly to the glasshouses, he joined the staff of Messrs. L. Twigge and Son, nurserymen, florists and landscape gardeners, at Wakefield, but did not stay long with this firm, and soon returned to private service, obtaining the post of gardener to James Beverley, Esq., in the same town. Soon after securing this post, he joined the Wakefield Paxton Society, in the activities of which he soon became keenly interested, and did much yeoman service on its behalf. Mr. Dunsmore stayed with Mr. Beverley for seven years, after which he accepted the complete charge of Holmfield Gardens, Wakefield, then owned by the late Mr. Wigglesworth, but since acquired as a public park by the Wakefield Corporation. It was while in the employ of Mr. Wigglesworth that Mr. Dunsmore commenced his very successful career as an exhibitor of all classes of plants. Upon the death of his employer, Mr. Dunsmore moved from Wakefield to Bradford, where he obtained the post of gardener to Mr. James Hill, now Sir James Hill, at Throstle Nest, Bradford, the garden of which he has had charge of for the last twenty-two years. He served Sir James Hill for about seven years, and upon Sir James removing from Throstle Nest, Mr. Dunsmore stayed on as gardener to his son, Mr. Albert Hill, the present owner of the beautiful estate. During his charge of the garden, Mr. Dunsmore has carried out many alterations and improvements, so that it is now recognised as one of the show gardens of Bradford, while Mr. Dunsmore is regarded as one of the leading practical horticulturists in Yorkshire, his services as a lecturer being much in demand. Soon after his arrival at Bradford, he joined the Bradford Paxton Society; he was appointed a member of its Committee, eventually became its President, and is now a life member. Mr. Dunsmore took an active part in the work of the Bradford Chrysanthemum Society, while he has also been the Chairman of the Bradford Professional Gardeners' Society. For some years he held a post under the Bradford Education Committee as gardening instructor at the evening school. In 1911, the North of England Horticultural Society was formed, and Mr. Dunsmore was appointed Secretary of its Fruit and Vegetable Committee. He is well-known as an exhibitor, and is in great demand as a judge at shows in the north country; his greatest successes as an exhibitor have been with Chrysanthemums.



MR. G. W. DUNSMORE.

Retirement of Mr. Walter P. Wright.—After thirty-seven years' service, Mr. Walter P. Wright retires from the post of Horticultural Superintendent in Kent, in September, under superannuation. At a recent meeting, Sir Mark Collet, Bart., Chairman of the Kent Education Committee, paid a warm tribute to the value of Mr. Wright's work, which, he said, would never be forgotten in the county. Mr. R. Hart, of the East Anglian Institute of Agriculture, Chelmsford, has been appointed horticulturist, and will take up his duties at the newly-established Farm Institute, Borden, near Sittingbourne, on October 1.

Grants by the Empire Marketing Board.—Some idea of the valuable work that is being done by the Empire Marketing Board in the encouragement of agricultural research, may be gleaned from a report of the grants made by it to various agricultural and horticultural research stations in England and Wales, which appears in the July issue of the *Journal* of the Ministry of Agriculture, Vol. XXXVI, No. 4, p. 353. The grants are made for the purpose of permitting research in various specialised subjects, and are administered, at the request of the Empire Marketing Board, by the Ministry of Agriculture. The Long Ashton Fruit Research Station has received a capital grant of £7,025 to meet the cost of an extension of its existing laboratories, a cold store, an orchard house, glass shelter, and other minor items, with a maintenance grant of £2,425 for the first year, rising to £2,750 in the fifth year, for the purpose of investigating factors governing the keeping qualities of fruits in cold storage. East Malling Research Station receives a capital grant amounting to £9,050, and maintenance grants ranging from £5,218 in the first year to £5,685 in the fifth, for the purpose of conducting research on the relationship of stock to scion in connection with crop production and resistance to disease, while a grant of £800 for one year has been made to the Rothamsted Experimental Station to enable the construction and maintenance of six "Wisconsin" tanks to investigate the rôle of soil temperature and atmospheric humidity in the incidence of diseases attacking Cotton in the Sudan. Also, for the purpose of investigating virus diseases, the Rothamsted Station has been granted a capital sum amounting to £1,835, with maintenance grants totalling £2,495 in the first year, rising to £3,115 in the fifth, while the Cheshunt Experimental and Research Station receives a capital grant of £1,040, and a maintenance grant of £1,108 for the first year, rising to £1,260 in the fifth. A special grant of £1,600 for the erection of experimental glasshouses, and maintenance grants of £1,760 per annum for five years, have also been made to the latter Station to allow of the investigation of such glasshouse pests as Red Spider and White Fly, and various fungus diseases. A grant of £520 has been made to Reading University to enable experiments to be conducted in the treatment of seeds for the prevention of dry rot of Swedes and Turnips, which is very prevalent in New Zealand and is considered to be seed-borne. Other grants include £850 per annum for three years to the Department of Zoology, Oxford University, to enable research of the factors governing the fluctuation in periodic cycles; of the numbers of various rodents; a capital sum amounting to £4,350, for extension purposes, with a maintenance grant of £4,600, rising to

£4,950 in the fifth year, to the Welsh Plant Breeding Station; £400 to the John Innes Horticultural Institute, to enable an investigator from the Institute to undertake an expedition to the uplands of Uraq and Persia, to collect species and forms of Prunus and Tulipa; and £220 to the East Anglian Institute of Agriculture to permit of the experimental planting of Spartina Townsendii for preventing sea erosion. Annual grants amounting to £7,200 are made to the Royal Botanic Gardens, Kew, for various specified purposes.

The Linnean Society's Library.—The direct expenditure on the Linnean Society's Library from May 1, 1928, to April 30, 1929, was £1,482 1s. 10d., including the second moiety, amounting to £666 13s. 4d., of the grant from the Carnegie United Kingdom Trustees. The amount directly spent on the Library during the past two years exceeds the total amount spent during the first eighty-eight years of the Society's existence. During the year 520 works were purchased, and 236 books and reprints presented, making a total of 756 additions. The number of volumes bound was 1,595. The additions enumerated above do not include current periodicals, of which the Society obtains 396 by exchange, 167 by gift, and eighty-seven by purchase. Between May 1, 1928, and April 30, 1929, 1,250 volumes were borrowed by 162 Fellows and Associates, or roughly about one in four of Fellows and Associates resident in the British Isles. In addition, the Central Library for Students borrowed sixty-two volumes. The Society borrowed on behalf of Fellows and Associates four volumes from the Science Library, which are not included in the 1,250 volumes mentioned above. During the same period, 1,125 signatures—including 49 on Saturday afternoons—were recorded in the Library Visitors' book by 221 individual visitors. It is probable that the signatures in the visitors' book represent only a proportion of the Fellows and Associates who visit the Library. The general routine work of the Library was carried on as usual, and, in addition, valuable help was given by Mr. A. W. Sheppard, who catalogued all the additions to the Library and prepared the lists of additions which are now periodically printed in the reports of the General Meetings. He also collated several hundreds of volumes of periodicals, sets of which for various reasons were incomplete, and a considerable number of such sets were completed. The collection of General Hardwicke's drawings of Indian animals and the extensive sets of paintings of the collection of animals which Lady Impey, the wife of the Chief Justice of Bengal in the time of Warren Hastings, possessed at Calcutta, have been carefully cleaned by Mr. Sheppard and placed in Solander cases. Mr. James Robson, another volunteer, prepared an alphabetical list of the periodicals received in the Library, which it is hoped may be printed ere long, and also prepared an index of all the papers read at the general meetings for the last fourteen years.

The Scottish Sweet Pea Trials.—The first of the three official inspections of the Sweet Peas under trial by the Scottish National Sweet Pea, Rose and Carnation Society took place at Helensburgh, on July 6. One-hundred-and-two varieties are on trial. They were sown in the autumn, planted out in spring, and grown on the cordon system. Notwithstanding the break in the fine weather two days previously, the flowers were seen in good condition and in a more advanced state of bloom than was the case a year ago. There was also a general improvement in the purity of the stocks, single rogues being detected in only two varieties. The new white introduction, Vectis, which has hitherto produced a pink rogue in numbers, proved true, and among the novelties was a cerise-scarlet seedling with wings folding backwards, and a cerise-carmine variety which the raiser claims to be a new colour. According to the colour classification, pink and cerise shades were the most numerous, while the blue group was larger than it has ever been. The following were the most promising seedlings in this early stage of the trials:—Cerise-scarlet (No. 11) a weather-proof flower of rich colour; two stocks of a rose-cerise seedling identical in colour, one distinguished by the large size of the bloom, and the other by its double standards; No. 14, a distinct shade of pale creamy-pink, of decorative quality; No. 18, the best in the blue class, and a self-maroon (No. 96) of a pleasing shade. No. 23 was prominent by reason of the large size of the purple blooms and the predominance of four-flowered stems, and the pure salmon seedling reserved for the Gold Medal by the N.S.P.S. was seen to better advantage than in the bunch staged at the London Show. A second inspection will take place when the seedlings are in a more advanced stage of growth, and the final judging will be done on the day of the Society's show, when the flowers will be staged in vases.

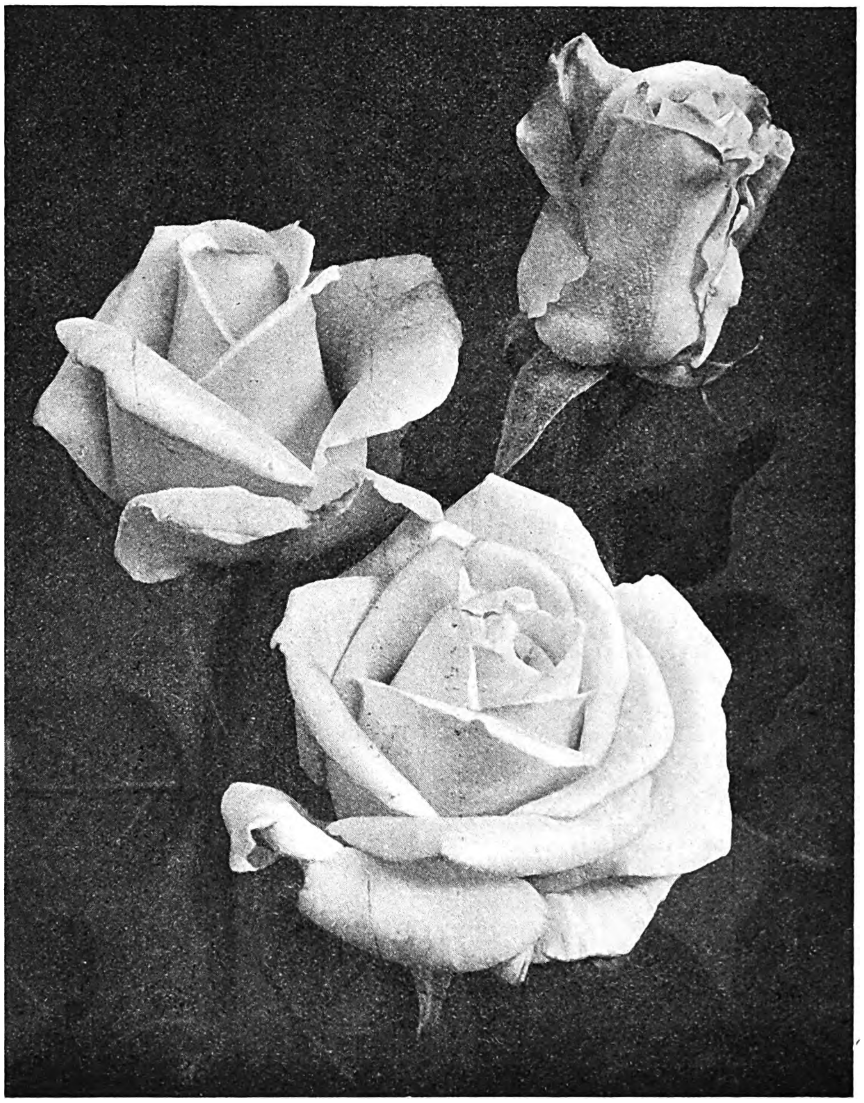


FIG. 23.—ROSE TRIGO.

N.R.S. Certificate of Merit, July 5. Flowers deep yellow and golden-salmon.
Shown by Messrs. Alex. Dickson and Sons. Ltd. (see p. 38.)

Appointments for the Ensuing Week.—MONDAY, JULY 22: Cannock Horticultural Society's Exhibition (two days). TUESDAY, JULY 23: National Rose Society's Exhibition of New Roses (R.H.S. new hall); Watford and Home Counties Horticultural Society's Exhibition (two days); Portsmouth and Southsea Horticultural Society's Show (three days). WEDNESDAY, JULY 24: Newcastle and District Horticultural Society's meeting; Dorset Horticultural Society's Exhibition (two days); Liskeard and District Horticultural Society's Exhibition; Romsey and District Gardeners' Association's visit to Harefield. THURSDAY, JULY 25: Saffron Walden Flower and Horse Show. SATURDAY, JULY 27: Leeds Paxton Society's lecture.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Sabbatia stellaris* (*Pursh.*).—A beautiful herbaceous plant, produced at the last Chiswick show by Mr. Ingram, from Frogmore. It is about a foot high, with opposite oblong leaves, and long-stalked, very sweet flowers, about a couple of inches in diameter. The corolla is deep rose colour, with a yellowish-green, star-shaped eye. Although well-known to botanists, neither this nor any other kind of Sabbatia has before occurred to us in cultivation; and Mr. Ingram may claim much credit for having shown how such plants are to be managed. It naturally occurs, according to Dr. Asa Gray, in *brackish* meadows, from Massachusetts to New Jersey and southward. It therefore demands a very warm season of growth, and Mr. Ingram grows it accordingly in a greenhouse. Gardeners are too apt to forget, when they hear of the great severity of winter in the United States, that the summers are, on the other hand, Neapolitan; and there can be little doubt that the reason why so many of the beautiful perennials of North America refuse to live with us, is that we turn them out-of-doors to experience the rigours of our wintry summers. *Gard. Chron., July 22, 1854.*

Publication Received.—*Fruit Culture*, by H. C. Davidson; Handbooks of Practical Gardening; pp. 142, illustrated; Messrs. John Lane, The Bodley Head, Ltd., Vigo Street, London; price 3s. 6d. net.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Control of Insect Pests: Red Spider.—Constant search and keen observation are always necessary to detect the various insect pests that infest many of the Orchids so that they can be removed before much damage has been done to the plants. This is especially so during spells of hot, dry weather sometimes experienced in the summer months, when red spider will often attack the undersides of the leaves of plants which are exposed to a fair amount of light and air, and although frequently syringed, the leaves and surroundings dry quickly, especially when hot and dry winds are prevalent. These pests often gain a hold on odd plants in any of the divisions, and if allowed to remain long, they will damage the tender foliage, which will soon assume a sickly, light-coloured appearance, and growth will be retarded thereby. It is, therefore, essential to the well-being of the plants to keep a keen look-out for the appearance of the pest and remove it by sponging the undersides of the leaves with soapy water or any mild insecticide. Spraying will often keep the pests in check, but once they have gained a hold, sponging is the best remedy in order to break the web under which the red spider works; applying specifics with a syringe strong enough to break the web would seriously damage the plants.

Thrips.—These are always troublesome, especially the small yellow thrips which increase rapidly under favourable conditions at any time of the year. These can be kept in check by regular spraying with an insecticide at fortnightly intervals during fine and dry weather, and fumigating the division on quiet evenings during the winter months or in unfavourable spraying weather. It is also advisable to have on hand a small vessel holding five ounces of water, into which is put six drops of pure nicotine (ninety-five per cent. to ninety-eight per cent. strength). With the aid of a good wing feather from a fowl, or a very small, soft brush, infested growths may be effectively treated with this. If the Orchid houses are near herbaceous borders or Corn fields, trouble is often experienced during the summer months by infestations of black thrips, which are sometimes blown through the ventilators and laps of the glass, while after rainstorms these pests may often be found alive in the water tanks, from which they are distributed around the plants, which they will infest in a short time. It is quite a usual thing in some districts under these conditions to find some live insects, particularly black thrips, the day after the division have been vapourised or sprayed. It is, therefore, essential to search regularly for any sign of the pests and deal with them as advised above. With Cypripediums and similar foliaged plants, the undersides of the leaves should be sprayed to remove the deposits left by the pests.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Strawberries.—It is the practice with some gardeners to plant the newly-rooted layers quite closely in the row—about one foot apart—with two feet between the rows, and so soon as the first crop of fruits has been cleared every alternate plant is cut out, leaving the remainder two feet apart each way. With some of the commercial growers there is a tendency to the other extreme, and they are adopting the "matted row" system; that is, they plant at eighteen inch intervals in the row, and allow thirty-six inches between the rows for the convenience of horse or mechanical cultivation. The first July after planting, however, the runners from these plants are thinned down to about four per plant. These are layered between the parent plants to form a matted row of strong, virile plants capable of producing a very large quantity of fruits for the next three years. They are then scrapped.

Maincrop Strawberries.—The main planting should be carried out at the earliest possible opportunity, so that the plants may become established before the end of the growing season. It has been proved at Botley and elsewhere that early planting, even to the extent of the last week in June or the first week in July, gives a very appreciable increase in crop and general vigour, and that these advantages are carried on in each succeeding year in similar proportion. Strawberries planted in August, September and October showed a progressive decline in crop records taken over a period of three years. The cultivation of the Strawberry is a problem at the moment, but no doubt it will soon be overcome. Growers should endeavour to prepare the soil well, to plant early, and to keep the soil between the rows well stirred so as to encourage root development from the very start. For this main planting, a distance of from fifteen inches to eighteen inches should be allowed between the plants and thirty inches between the rows. Plant firmly and rather deeply, and keep the plants well watered until they are established. Immediately the planting is completed, the cropping plots should be cleared of all runners, weeds, and the longest straw, the soil between the rows should be lightly cultivated to form a mulch, and a little of this drawn up about the bases of the plants to protect the new roots that are now being formed.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Early Peach House.—When all the Peaches have been gathered, shoots which have fruited and are no longer required should be cut out to make room for the new growths and to let in light and air, without which ripe wood and plump buds can hardly be expected. Next to thinning the growths, the most important necessities are cleanliness and freedom from all insect pests. The roots, needless to state, should be kept thoroughly moist, applying clear water or diluted liquid manure, according to the condition of the trees, care being taken that the latter, or mulches, are not applied too heavily, as an excess of either will result in gross growth when the wood should be ripening. Old trees which have been cropped heavily often lose whole branches when thinned and exposed to full sunshine; free ventilation and liberal waterings at the roots are excellent preventives, but these should be supplemented by training the young shoots over exposed branches, or by shading lightly.

Successional Peach Houses.—Fruits in these houses have made rapid progress, and any time lost at the beginning has now been redeemed. As this gain must be maintained, liberal thinning should be completed and the growths finally tied in. Thorough syringing should be practised twice a day, using soft water, or water free from lime, the last syringing being done about 4 p.m., when the house should be closed for three or four hours to assist the swelling of the fruits. Liberal supplies of clear water or stimulants, according to the strength of the trees and the weight of the crop, should be given. Peaches approaching ripeness should be protected from rain splashing through the ventilators, and not syringed, or they will soon be spoiled; a certain amount of moisture is essential but this can always be provided by damping the stems and floors after the ripe fruits have been gathered.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Hardy Perennials.—A considerable number of hardy perennials may be increased readily by cuttings at this season, and an endeavour should be made to insert a few of all scarce and rare plants which may be increased by this means, in case stock plants are lost during the winter. Cuttings of the current year's growths which are becoming moderately firm, inserted in pots of sandy soil and placed in a cold frame, which should be kept close and shady for a time, usually give satisfaction.

Seed Sowing.—Seeds of new and choice plants as they become ripe, ought to be given special attention. Many rare plants have been lost to cultivation through the thoughtlessness of the private grower in not taking the precaution to save his own seeds, thinking he could procure them from a seed-firm when required in future. As many of these are in only a few people's hands to begin with, it is essential that all should help to save and distribute seeds of rare plants when opportunities occur. Specially good forms of any plant should always be marked for seed saving. It adds considerably to the pleasure of gardening to be able to grow strains of one's own selection.

Border Carnations.—These were extremely popular plants in many gardens a number of years ago, but have been partly neglected since the cultivation of the perpetual-flowering varieties has been taken up so extensively. None the less, they are a group that a great deal of real pleasure can be had from. They make ideal clumps for the mixed border, where, apart from their flowers, the blue-grey of the foliage is always attractive. Probably the method whereby they may be seen and examined to greatest advantage is to plant them in a narrow border in three lines; under such conditions it is an easy matter to reach any individual plant. Layering is the method usually practised to increase the stock, and no time should be lost in getting this work completed, so that the plants have ample time to become sufficiently rooted before the middle of September, when they may be planted in their permanent quarters. If the soil is heavy, light loam with plenty of sharp grit added should be worked around the plants before layering. See that the "tongue" is sufficiently long and the cut kept open, and the whole made firm, using pegs for this purpose. Wire pegs can be bought or made; where Bracken is at hand, a plentiful supply of pegs is available by using the stems of this.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Humea elegans.—Plants of this subject are now developing their plume-like inflorescences, and should be given frequent doses of weak liquid manure. A cool, airy house and plenty of room should be afforded them if they are to give the best results. Seedlings of this subject are now ready for pricking off into small thumb pots, this being preferable to pricking them off into boxes; a light, sandy compost is best for them at this stage, the rooting medium being made stronger as growth proceeds. This plant should not be subjected to high temperatures caused by artificial heating, but should be grown under the coolest conditions possible throughout all stages of growth.

Chrysanthemums.—Plants that are being grown to produce large exhibition flowers will by this date have filled their receptacles with roots, and it will be found necessary to supply the latter with some weak stimulants to keep the plants healthy and vigorous. With the dry season we have experienced the plants have had to be watered frequently, which must have greatly reduced the plant food contained in the soil. Although I recommend feeding the roots, I do not advise the use of strong nitrogenous manures at this stage of growth. Several good proprietary manures are to be obtained, and if these are used strictly to the makers' directions, they should give the desired results. Weak soot-water is a safe stimulant and should be applied alternatively with liquid manure; the latter can be made by placing sheep, horse or cow manure in a bag, and soaking it in water for a few days before using the clear liquid which, if strong, should be diluted with clear water. Chrysanthemums delight in a change of food, and if feeding is done judiciously, good results should be forthcoming. Pay strict attention to disbudding and the removal of all side growths. It is also essential to keep all growths tied neatly to their supports or they may be broken off by strong winds. Examine the plants frequently for mildew and insect pests. Single and early bush Chrysanthemums will also require some assistance in the way of feeding, preferably with soot-water and weak liquid manure, until such time as the buds are taken, when a concentrated manure may be necessary to assist them to produce good flowers.

Eranthemum pulchellum.—Plants of this delightful winter or early spring-flowering stove plant should be potted on into larger receptacles so soon as the cutting pots become filled with roots. The potting compost may consist of good fibrous loam with some peat and a liberal supply of sharp sand added. During the early stages of growth, the shoots should be pinched out several times to promote a bushy habit, and the plants shaded from bright sunshine. The best results are obtained by growing them near the roof-glass in an intermediate house during the summer months. Syringe the foliage throughout the growing season to keep red spider and thrips in check, which are very partial to this plant. When the receptacles in which the plants are to flower are well filled with roots, frequent applications of weak liquid manure will prove very beneficial to them, for they are gross feeders; under suitable conditions E. pulchellum will flower for several weeks.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Asparagus.—The cutting of Asparagus should now cease, to enable the plants to build up strong crowns for next year's crop production. The growths will need support against winds and heavy rains as they are easily broken off at the base. The bed may receive a dressing of a quick-acting fertiliser during the summer, and should be kept free from weeds by hand-weeding. Beds of seedlings should have every attention; give a dressing of salt and apply a mulching of short litter between the rows to prevent the soil becoming dry.

Peas.—To secure late crops of Peas, seeds may be sown now. Make a trench and place plenty of decayed manure in the bottom of it, and on this place a layer of soil. Choose an open site for this sowing, as in such positions the plants are less susceptible to attacks of mildew than if planted in shaded or crowded quarters. Sow early varieties, as these mature their crops more quickly than main-crop sorts.

Seakale.—Examine the Seakale plants, and where there are several crowns, rub off all but one to each, so as to secure good strong crowns. Seedling plants from seeds sown in the spring, if too close together, should be thinned out to a reasonable distance apart. Keep the plants free from weeds by using the Dutch hoe between the lines frequently.

Seed sowing.—Further sowings of Lettuce, Radish and Endive may be made to provide crops for autumn use. Plants of Lettuce and Endive in seed-beds may be planted out during showery weather to maintain a regular supply.

Kales.—Scotch Kale and Sprouting Kale may still be planted on ground from which early Potatos, Turnips and other crops have been lifted. Allow plenty of room between the plants.

Runner Beans.—These are now growing freely and should be examined from time to time to see that the leaders are going the correct way; if not, train them in the right direction. At present the weather, being showery, suits Runner Beans, but should it be dry, never let the roots lack moisture. As the Beans begin to form, apply a little artificial fertiliser or liquid manure.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemont, Monkton, Ayrshire.

Carrots.—A sowing of stump-rooted Carrots should be made to afford a supply of fresh roots; these are preferred in most cases to the long-rooted kinds, but they soon get out of condition, even if they escape the dreaded Carrot fly.

Cabbages.—If Cabbage plants are required for autumn planting, seeds should be sown now to ensure good plants before growth ceases. Ground cleared of early Potatos is most suitable for this purpose and need only be levelled and trodden preparatory to drawing out the drills, which, as in the case for most small seeds, should be shallow and one foot apart. Sow the seeds thinly or transplant the seedlings into nursery rows when the first rough leaves show. Where finches and sparrows abound, a net should be placed over the seed-bed.

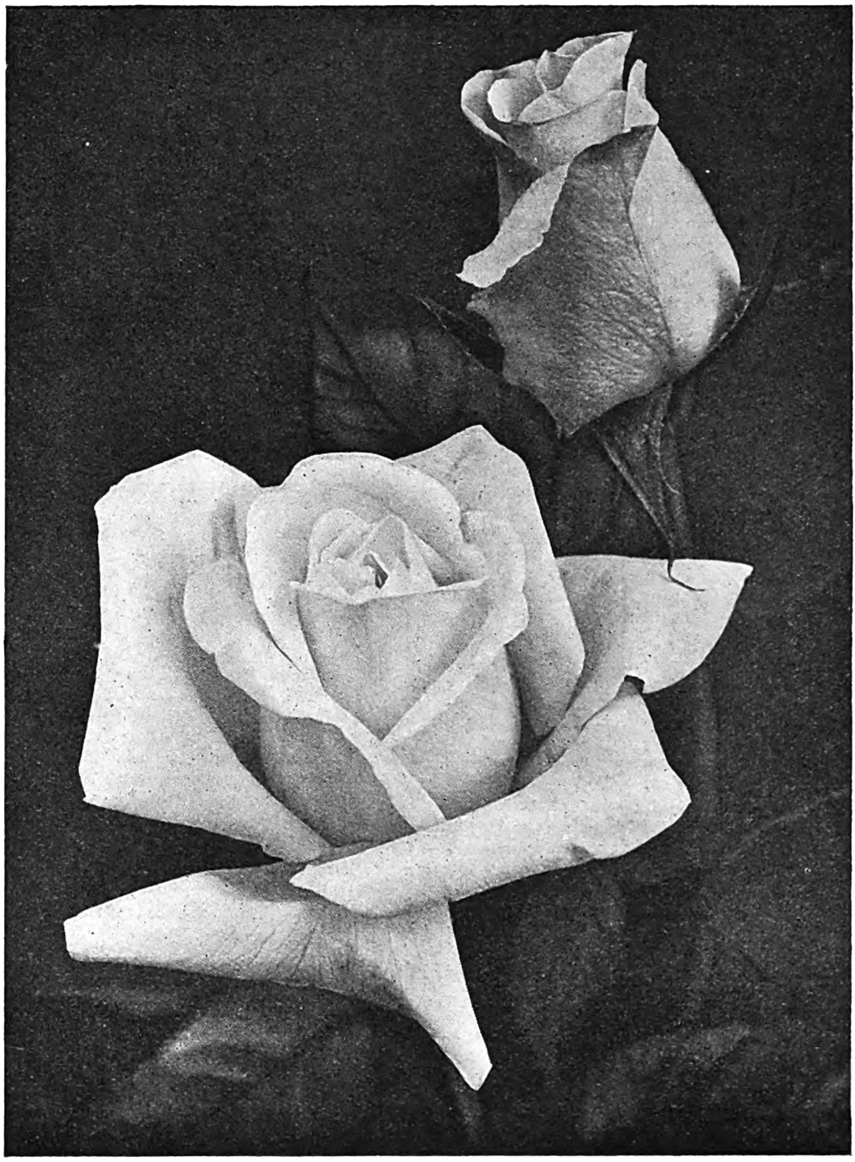


FIG. 24.—ROSE AUREATE.

N.R.S. Gold Medal, July 5. Flowers rich yellow, tinted with pink. Shown by Messrs. Alex. Dickson and Sons, Ltd. (see p. 38.)

Lettuces.—A good breadth of Lettuce should be sown, and when the seedlings are large enough, they should be thinned out to one foot apart. Plants from this sowing may be kept in good condition well into the autumn if protected from cold rains. The Chase Continuous Cloche is ideal for this purpose, as no attention is required after placing these in position.

Dahlias.—Thin out the growths of these until only four or five are left to each plant and encourage these by applying water at the roots and spraying the foliage in the evening. As lateral growths develop, retain only so many as will have ample room for development. Stake the growths retained as they lengthen, and give an occasional dose of liquid manure.

Old Cyclamens.—These should now be quite rested and clear of foliage. Soak them in a tank of water until the soil is thoroughly wet, after which they may be placed in a cold frame until root action commences, when they should be repotted. Those in small pots should be potted on without root disturbance, but where the maximum size of pot has been reached, it is necessary to slightly reduce the old ball of soil and return the plants to pots of the same size. Ample drainage should be afforded and the compost should be free and open. I find Cyclamens do well in a compost of equal parts fibrous loam and rough leaf-mould, with a small quantity of lime-rubble, charcoal and rough sand added. Should the loam be light in texture, an additional quantity may be used. No animal manure should be given, but a dusting of bone-meal and Clay's fertiliser will be beneficial. After potting, the plants should be placed in a frame with a northern exposure, and sprayed regularly and frequently during hot weather. Shade them during the heat of the day, and close the frame for an hour or two as the sun declines; on warm nights remove the lights completely. Water should be given carefully until root action is free, after which the compost should never be allowed to approach dryness.

PLANTS NEW OR NOTEWORTHY.

PAULOWNIA FARGESII, FRANCHET.

It is interesting to record the flowering of this Paulownia for the first time at Kew early in the month of June this year. The tree was received as a small plant from M. Maurice de Vilmorin in the autumn of 1908. It is now, after twenty-one years' growth, about forty-five feet in height.

The species was first described by Franchet in the *Bulletin* of the Paris Museum of Natural History in 1896, from specimens collected by the Abbé Farges in the mountains of north-eastern Szechuan. Mr. Augustine Henry collected specimens in the mountains of Hupeh, and Mr. E. H. Wilson found it during 1904, and again in 1908. Mr. Wilson describes it as a common tree, forty feet to sixty-five feet in height, in western Szechuan, growing at 900 feet to 4,000 feet elevation.

The first record of the tree flowering in Europe was in the nursery of M. Boucher, in Paris, during the early summer of 1905, on plants raised from seeds sent by the Abbé Farges to M. Maurice de Vilmorin, presumably about 1896.

The Kew tree is growing in a very sheltered position in the Rhododendron Dell, protected by tall woodland trees on the north, east and south, the sun reaching it only during the late afternoon on the west. As one would expect in such a position, the tree is rather "drawn up" and loose in habit, but this weakness may be readily overlooked when the object aimed at—to flower the tree—is attained.

Most of the stronger shoots developed a terminal panicle of flower buds in the late autumn of 1928, and although the winter was more than usually severe, most of the embryo flower-buds escaped unharmed. The first flowers opened towards the end of May and continued into June. The illustration of an inflorescence (Fig. 26, p. 51) gives some idea of the build of the panicle of blossoms. The flowers are pleasingly fragrant, lavender or pale violet in colour, with two yellow bands in the throat, and dark spots.

The best-known species of Paulownia is P. imperialis, Siebold (*syn.* P. tomentosa, Koch.), but it is only in the milder parts of the country that the embryo inflorescences, which form in autumn, survive the winter. The figure in the *Botanical Magazine*, t. 4,666, was drawn from an inflorescence cut from a tree which flowered in the Bishop of Exeter's garden at Bishopstowe, near Torquay, in 1852. There is a well-known tree in the Cambridge Botanic Garden which produces the Foxglove-like blooms fairly regularly. The blue-purple flowers with yellow stripes and dark spots are pleasingly fragrant.

Even if it is not possible to secure flowering trees in many British gardens, Paulownia imperialis is worth cultivating for its attractive foliage. Planted in rich soil and kept to a single stem, growth made in one season often reaches ten feet to twelve feet high, with leaves two feet to two-and-a-half feet in diameter. The growths should be cut down to within about one foot of the ground each year, early in March. Propagated by root cuttings or raised from seeds and grown in this way, P. imperialis is an attractive subject for the sub-tropical garden, or as a group of a dozen or more plants in a lawn bed.

Having read of, and talked with persons who have seen, the trees of Paulownia imperialis forty feet to fifty feet high, flowering in the Jardin des Plantes, in Paris, one is forced to the conclusion that it is not the frosts alone which destroy the buds in winter; rather is it the alternating spells of mild weather and frosts which we experience in British gardens. A moist, warm period during January or February awakens growth in the dormant flower buds; this suddenly changes in a night or two to sharp frosts, and irreparable damage is done.

This, and the flowering of P. Fargesii at Kew, suggest that the only hope of flowering Paulownias with any degree of success in the average climate of British gardens is to select very sheltered positions for them.

A number of other species of Paulownia have been described and named. Several have been raised from seeds collected in China, but it is, unfortunately, only in the favoured gardens of the south and west that their successful cultivation is likely.

P. Duclouxii, Dode (Wilson, No. 3,170).—This species was found at 900 to 3,000 feet elevation by Mr. E. H. Wilson in western Hupeh, during April, 1907.

P. Fortunei, Hemsley.—A native of north and south China, described by Dr. Hemsley in the *Journal* of the Linnean Society in 1890.

P. glabrata, Rehder.—Described from specimens collected by the late Mr. W. Purdom at Shensi, in 1910.

P. tomentosa var. lanata, Schneider.—Collected by Mr. E. H. Wilson in W. Hupeh during 1907, at an altitude of 4,000 to 6,000 feet. A tree of this species (Wilson 769) thirty feet in height, growing at Aldenham, is figured in *The Gardeners' Chronicle*, Vol. LXXII, Fig. 68, p. 167, 1922.

P. meridionalis, Dode.—Described in 1908 in the *Bulletin* of the Dendrological Society of France.

P. recurva, Rehder.—This is Wilson's 769A, and is near P. imperialis, but much less tomentose. Mr. E. H. Wilson found it at about 4,000 feet altitude in western Hupeh in 1907.

P. thyrsoidea, Rehder.—This species is stated to differ from all other Paulownias in the coarse dentation of the leaves. The inflorescences are larger than those of P. Fargesii, the species illustrated, but the lavender flowers are rather smaller. Specimens were collected by Mr. S. T. Dunn during 1905 in western Hupeh, and by Mr. E. H. Wilson two years later. *A. Osborn.*

INDOOR PLANTS.

HYDROCLEYS COMMERSONII.

This aquatic is known under two other names, *i.e.*, Limnocharis Humboldtii and Vespuccia Humboldtii. Hydrocleys Commersonii is the correct name for the plant. It is a very fine member of the Natural Order Alismaceae, and is a native of Brazil.

The flowers are borne on fairly long stalks rising above the surface of the water. The petals are three in number and are a beautiful clear and glistening yellow in colour, shading to gold in the centre. The stamens are dark brown and stand out well in contrast to the other parts. The leaves are ovate and somewhat inflated on the underside in the centre; many of them float, but the majority stand up just above the water.

H. Commersonii may be cultivated in tubs or cisterns, or in the shallower parts of an aquarium. The plants should have their roots in good, rough loam, and be submerged to a depth of about four inches. Propagation is usually carried out by means of division of the older plants, but it may also be effected by rooting the runners, and by seeds. *F. H. Wright, Cambridge Botanic Garden.*

ORCHID NOTES AND GLEANINGS.

PHALAENOPSIS.

Most Phalaenopsis species and hybrids, of graceful habit and free-flowering, thrive well in a moist position near the roof-glass in the warm house, although it is often found that one particular position suits their requirements, and they fail to grow well in any other, even in the same house. It is, therefore, advisable to note the position where the plants succeed best, the health and vigour of the specimens being the surest guide to this. Phalaenopsis are shade-loving subjects, and should be protected from direct sunshine, which soon damages the tender foliage, but the plants require plenty of light to assist their development during the summer, which is the growing season for most kinds. Plenty of moisture, both in the atmosphere and at the roots is required, and the atmosphere should be kept sweet by judicious ventilation.

The majority of the plants will now be producing new roots, and fresh rooting material should be afforded. Where the plants are not leggy and are accommodated in pans or baskets of a suitable size, the old compost and decayed roots should be removed carefully and the drainage made perfect. Fresh material, consisting chiefly of chopped Sphagnum-moss, with a little A.1. fibre intermixed, should be inserted, adding lumps of charcoal as the work proceeds. Where it is necessary to remove the plants to other receptacles, the live roots which are clinging tightly to the pans should be carefully removed with the assistance of a thin knife blade or a similar instrument, avoiding injuring them so much as possible. After disturbance, water should be given sparingly until growth and roots are more advanced, when increased supplies will be needed. During the winter, when the plants are not active, very little water is required at the roots, and a less humid atmosphere is necessary to prevent decay and spotting of the foliage. *D. G.*

TREES AND SHRUBS.

RHUS TOXICODENDRON.

Poison Ivy is the name by which this North American shrub is commonly known, and only too well does it deserve this designation, for it possesses the property of causing a severe attack of eczema-like eruptions to break out on the skin of many people. It is the milk-like sap which possesses toxic properties, and should this come in contact with the skin, blisters and eruptions quickly make their appearance. These are exceedingly irritating and painful, and the desire to alleviate the irritation by scratching, if given way to, only results in spreading the infection. Certain people are immune to this poison—I believed myself to belong to this class, and have handled Poison Ivy with impunity on many occasions, but recently, after pulling some plants up, a severe attack of the blisters appeared on my face, although my hands and arms were free from infection. Others are so susceptible that contact with the plant is not necessary, mere proximity to living bushes inducing an attack. It would appear that in such cases the pollen, dispersed by the wind, is the cause of the trouble, for the evil effects are particularly noticeable on the eyes. Many cures are advocated, the most reliable of which appears to be lead acetate.

Poison Ivy is very abundant in the eastern United States, and occurs in two distinct forms, the one climbing over rocks, bushes, trees, etc., and attaching itself by means of aerial roots, and the other of bush form, attaining a height of eight or nine feet. The compound leaves are very attractive and are invariably composed of three leaflets, the two side leaflets having much shorter stalks than the terminal one. They vary somewhat in shape from broadly ovate to obovate, and have either entire or coarsely notched margins. The upper surface is of a rich green hue and is somewhat glossy in appearance, while the under surface is more or less pubescent. In the fall, the foliage assumes gorgeous orange and scarlet shades, and oft-times deceives the unwary into gathering armfuls for decorative purposes. The flowers are insignificant, being dull white or greenish, and are borne in slender, axillary panicles during spring and early summer.

Rhus Toxicodendron is a beautiful climber, but, unfortunately, it is not safe for general cultivation, and should only be tolerated in places where its dangers are clearly known and understood. *T. H. Everett, New York, U.S.A.*

STYRAX WILSONII.

This beautiful shrub has been the most satisfactory of its genus tried here. It is a deciduous species, discovered by Mr. E. H. Wilson in north-west China about twenty years ago, when he was plant collecting for the Harvard University. Growing to eight or ten feet high, S. Wilsonii is a slender, upright shrub with an open, twiggy habit.

The ovate leaves are about an inch long, pale green and slightly downy in the spring. Soon after mid-summer the flowers appear on the short, lateral twigs, the star-shaped corollas, which are over half-an-inch across, being a pure glossy white and the anthers yellow. The flowering season lasts for fully six weeks. I have found S. Wilsonii to flower regularly and freely, and my specimen, now nearly fully grown, is a most charming object when every one of its fine little shoots is enlivened with the whiteness of the sharp-pointed blossoms. Happily, this very beautiful shrub came through the trial of last winter with no more than minor injuries to the tips of the branches. It had no protection whatsoever, and was standing well away from, and rising above, a low westerly wall.

This species seems to do well in an average light loam, which is lime-free, and it asks no special cultural attention. Seeds have not been ripened here, and cuttings seem difficult to manage, at any rate from an amateur's point of view. But S. Wilsonii, however it may be raised, will respond by beginning to flower at a very early age, which is an attribute of no small merit in itself.

NOTOSPARTIUM CARMICHAELIAE.

ALTHOUGH I had occasionally seen this fine plant well grown and flowering freely in other gardens, notably Bodnant, it was not until early July of the present year that an old specimen of my own decided to save a vanishing reputation by flowering. It has since been a mass of colour and the pinky-lilac blossoms are borne most elegantly on the slender, arching twigs.

The Pink Broom of New Zealand comes from the South Island, but it is stated to be rare as a native. Mr. Bean does not consider it hardy at Kew, but in my very dry, thin soil it came through last winter without the slightest injury, Ceanothuses, Fremontias and Dendromecons all being killed within a few yards of it. It is entirely leafless, save when young, the green, Rush-like branches suggesting those of a Spartium. The plant referred to is about four feet tall, but it will go to double that stature under favourable conditions. *North Wales.*

ALPINE GARDEN.

GENISTA HORRIDA.

THIS little Broom has not a reputation for free-flowering, but a specimen growing among other rock plants on a dry, hot slope has, this year, been gilded with its rich yellow blossoms since early July. The plant is about a foot across and half as high, making a firm, well-rounded cushion of closely-set, spiny twigs and small, trifoliate leaves, the whole shrub being downy with silvery hairs. The flowers, which are borne in terminal clusters, show up well above the branches, and if the plant could be relied upon to bloom more regularly, it would be a valuable addition to our rock garden shrubs, if only on account of the lateness of its season.

In any case, G. horrida is always worth a trial, for it is an interesting species, and its hummocky shape is admirably adapted for association with rocks and dry, sunny ledges. Its native range is mainly confined to the mountains of central Spain, upon which it grows at elevations of at least 4,000 feet. This doubtless helps to explain its extreme hardiness as compared with some of its southern allies. *J.*

CAMPANULA ROTUNDIFOLIA VAR. ROBSONII.

In the autumn of 1897, I acquired a plant of Campanula Robsonii, which I saw offered as a development of C. rotundifolia, that widely-spread species which gives numerous geographical and other forms, some of which are not constant under cultivation. The plant in question was stated to have "immense violet bells on nine-inch stems." It flowered last year for the first time, and I was much pleased with this fine form of our native Hair-bell, the "Blue-bell" of Scotland. It flowered freely, and produced very handsome, violet bells, drooping from the slender stems.

This year, however, C. r. var. Robsonii has surpassed itself, and at the time of writing, early July, is exceedingly fine. The fair-sized plant has literally hidden its foliage by the mass of flowers; it is situated near the base of the rock garden, and is most pleasing.

I have no record of its origin, but imagine it to be a wild form collected abroad and distributed a few years ago.

GERANIUM PYLZOWIANUM.

MANY good plants are found among the Geraniums, or Cranesbills, both for the border and the rock garden, and during recent years we have had some most useful and delightful introductions, one of which, Geranium Pylzowianum, came into flower with me in June and should give pleasure for a long time with its wonderfully large and brilliant flowers on a dwarf plant, not more than three inches high, and frequently an inch less than that. Mr. Farrer stated of it that it "stands eminent among the most precious of my introductions." Higher praise it could hardly have than that. It comes from grassy areas in the northern marches of Tibet.

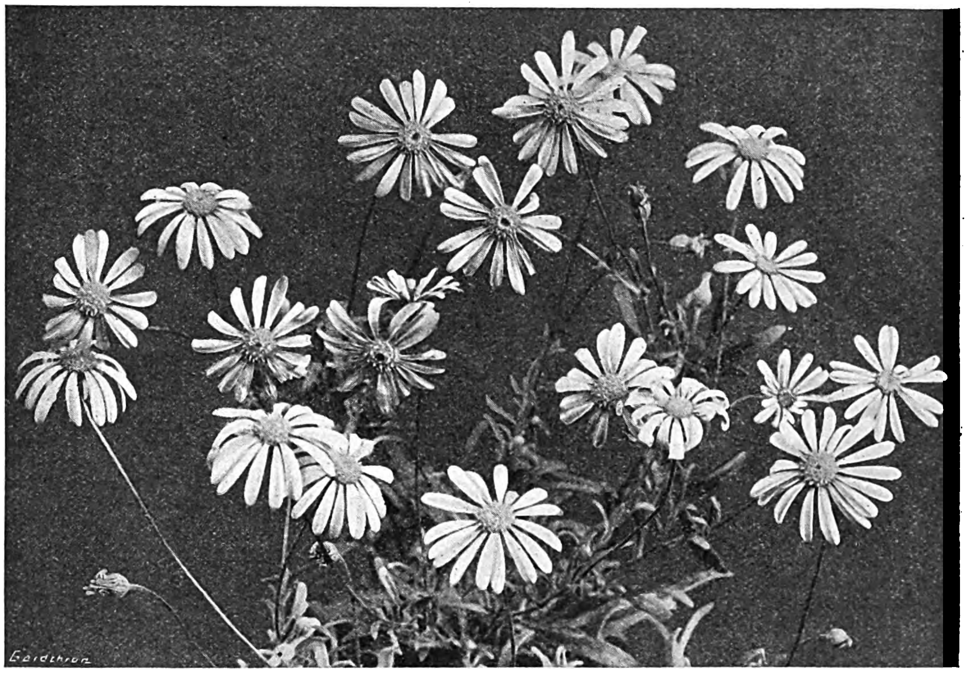


FIG. 25.—ASTER ADFINIS.

R.H.S. Award of Merit, July 9. A South African half-hardy annual. Flowers rich blue and yellow. Shown by Messrs. Sutton and Sons. (see p. 35.)

G. Pylzowianum is inclined to run about, although not at all rampantly, but with restraint, forming wide tufts of charmingly divided leaves and producing twin flowers on slender pedicels. The flowers are wonderfully large, being bigger than those of G. sanguineum. The description of the colour of the flowers is a matter of some difference of opinion. While Farrer states that it is "of a clearer purer rose than G. sanguineum," some are bold enough to call it "magenta," which it is not quite. Farrer's description appears nearer to my own ideas of the tint; in any case, it is a delightful little plant. *S. Arnott.*

CHRYSANTHEMUM CORONIPIFOLIUM.

THIS charming little alpine has been a picture of dainty beauty on the granite "Treasure Box" for the past few weeks. These dwarf Chrysanthemums (or Leucanthemums, or Pyrethrums, or Chamaemelums !) are fascinating subjects for the choice rock garden and scree, for almost all of them are of easy culture, although sometimes short-lived; they should be far more widely grown, for their flowering period is lengthy, their habit good, and they are never invasive.

C. coronopifolium, which I had as C. alpinum (a still smaller plant, and of rather frailer habit) forms most attractive tufts of glossy green, unevenly-toothed leaves about an inch high, and in June and July the six-inch flower stems arise, each bearing sturdily aloft a densely white and perfectly shaped, single Chrysanthemum, golden eyed, and of a good substance.

It is stated to dislike lime, but I have grown it equally well in both limestone and granite scree, although I somehow seem to instinctively plant it in lime-free soil for stock purposes; this is probably only an ingrained prejudice, through so often hearing it decried as a limestone plant.

Another treasured dwarf Chrysanthemum is C. hispanicum, perhaps not quite so "wee" but small enough to warrant admission to the choicest rock garden; it studs the high screes and shingle slopes of the Sierras of Spain with its downy, jagged, silvery foliage. The flowers are borne erectly on stems six to nine inches high, and may vary from white to delicate sulphur-yellow, and there is stated to be a purple form, the sight of which I hope to be spared, for I cannot picture it as being anything but frankly ugly.

C. hispanicum var. radicans is of intense charm, a Liliputian, its bright, silvery cushion being studded a few inches above with solidly round, white or yellow "Daisies." This last, however, I have always found hard to keep; it thrives for a year or two, and then, it is not ! and I have to sow seeds again; but it is easily worth the bother, for seeds germinate readily, and I am always hoping to get a permanent form, or to find a position where it will dwell happily *ad infinitum. Will Ingwersen, The Birch, Sharpthorne, Sussex.*

GERANIUM CELTICUM.

THIS has been distributed under the name of G. Robertianum var. Buxton's White. It was, I believe, distributed by the late Mr. Charles Buxton and was for long known only as a form of the native Herb-Robert.

It is now recognised, however, as G. celticum and is quite distinct from what a white form of G. Robertianum would be. It is much dwarfer and forms a very compact plant with finely divided, light green foliage, and numerous small white flowers. I believe it to be a perennial, but, in any case, it seeds freely, and soon becomes plentiful, although not producing seedlings so lavishly as G. Robertianum. With me it is only three or four inches high and, although showy, is yet quite attractive and worth growing. *S. A.*

NOTES FROM KEW.

FOR mid-summer and early July flowering, the Philadelphuses or Mock Oranges are, perhaps, the best known of all hardy shrubs, being suitable for both large and small gardens. The one drawback is that the choice of colour is so very limited. There is, however, a very wide range in the size of the bushes, while the flowering season is long, and the group embraces both large and small, and double and single-flowered sorts.

Several of the species should still find a place in a wide selection of the best ten or twelve for garden decoration, although for freedom of flowering and general value in gardens the hybrids must predominate. Arranged in their order of value, the most notable varieties flowering at Kew might be placed as follows :—Virginal, a large double white, average height five to six feet ; Voie Lactée, a very large, single white, bushes spreading in habit ; Norma, another large, single white, upright in growth ; Glacier, free-flowering, double, snowy-white and of moderate sized bloom ; Girandole, very free-flowering and fragrant, double white ; purpureo-maculatus, white, with a large blotch of purple at the base of each petal, very fragrant and abundant flowering ; Lemoinei var. erectus, a small, free-flowering, old hybrid of upright growth ; microphyllus, small flowers and foliage, very fragrant, white blossoms, the plants being twenty-four to thirty inches high, and of spreading habit ; Avalanche, free-flowering, single white ; Rouge Red, distinct, with deep crimson blotches at the base of the white petals ; latifolius, a tall, spreading bush, twenty feet high and through, with large, single, white blooms ; and insignis, a tall, late-flowering, single variety.

The Washington Thorn, Crataegus cordata, is one of the most distinct and useful of the American Hawthorns. Although first introduced to British gardens so long ago as 1738, the tree is comparatively little grown. Its valuable characteristics are that it flowers in early July, and the small, scarlet fruits, usually borne in profusion, remain on the trees throughout the winter.

Aesculus californica, the Californian Buckeye, or Horse Chestnut, is another distinct, July-flowering tree. It forms a short trunk, but unless carefully trained in a young state, this Chestnut often takes on the character of a wide-spreading shrub as much or more in width than height. The leaves are rich dark green in colour, abundantly produced and smaller than in most of the Chestnuts. The white flowers are borne freely in erect, cylindrical panicles, and the trees usually mature plenty of seeds, which provide a ready means of increase.

Sheltered by tall Oak trees in the wood on the south side of the Cedar Vista, and partially shaded from the sun by trees on the mound near King William's Temple, a considerable number of large bushes of Rhododendron discolor are flowering freely. The large, blush-tinted, white blossoms are very attractive and pervade the air with their delicious fragrance. A native of west and central China, and first introduced by Mr. E. H. Wilson in 1900, the more familiar one becomes with this Rhododendron, the greater is one likely to appreciate its undoubted merits. A perfectly hardy shrub, with large, leathery, evergreen leaves, it starts into growth late, and the flowering season of the different forms extends from mid-June to the middle of July or later. In addition to the individual value of the best forms, R. discolor, crossed with the later-flowering, large-leaved hybrids, is proving a most useful parent in the raising of a midsummer-flowering race of Rhododendrons. The most important point to remember in selecting positions for planting is that during the second half of June and in July we expect the sun to be at its brightest ; therefore, choose positions sheltered from the sun for several hours during the middle of the day.

In contrast to the large leaves and large flowers of R. discolor, there is the small-leaved and small-flowered R. micranthum. As a matter of fact, this small-flowered, white Rhododendron in general appearance more closely resembles Ledum latifolium than a typical Rhododendron plant. R. micranthum is a very hardy species and the bushes are freely clothed at the present time with compact racemes of small, white flowers. Growing three feet to five feet or more in height, R. micranthum was first introduced by Mr. E. H. Wilson from western Hupeh in 1901.

The Spanish Broom, Spartium junceum, is a very old garden shrub which cannot very well be planted too freely in light soils and dry, sunny positions. Flowering from June to September, it is one of the most valuable of all shrubs for mass planting in thickly populated town parks. The rich yellow, Pea-like blossoms are borne freely in loose, terminal racemes. The shrubs ripen seeds freely, and these provide an easy and rapid means of increase. Inclined to be loose and straggling in habit, Spartium junceum should be pruned freely each year in February or early March, especially during the first few years, or this south European shrub soon becomes unkempt in appearance.

Styrax japonica is the most useful and attractive of this interesting family of shrubs or small trees. One specimen at Kew forms an attractive lawn deciduous tree some fifteen feet high. Better conditions for the Styrax, however, are found in the shelter of large lawn beds and shrubbery borders, where there is cultivated ground and shelter to the roots provided by dwarf shrubs. In common with many shrubs this year, Styrax japonica is flowering with more than usual freedom, having come quite unharmed through 20° to 25° of frost on several consecutive nights. The pure white flowers, each about three-quarters-of-an-inch in diameter, are borne in pendulous clusters along the branches.

It is useful and interesting to note the Deutzias which withstood the hard and very trying winter well. The hybrids of D. scabra are the most useful, as they start into growth later than D. gracilis, and therefore escape the late spring frosts. Among the most satisfactory are D. scabra var. staphyleoides, single white ; var. Pride of Rochester, tall, double white, with a tinge of purple ; var. magnifica, with long, arching growths of single, white blossoms ; D. discolor var. major, with blush-tinted, white flowers an inch across, borne in long, arching sprays ; and D. Wilsonii, a strong-growing Chinese species, flowering at the end of June and early July, its large, white flowers being produced in corymbose panicles. *A. Osborn.*

NOTES FROM A WELSH GARDEN.

WHILE most shrubs have been unusually prolific of blossom, the Cistuses are not nearly so good as they generally are at this season. The winter, of course, seriously reduced their numbers, but even those which came through the ordeal with the least visible harm are yielding blossoms which are pinched and poor in form. C. ladaniferus var. immaculatus, however, by no means the hardiest and perhaps the handsomest of the genus, is doing well, and a young plant of C. populifolius var. lasiocalyx has already proved to be what the generous donor of it stated it would be—a great improvement on the type. Another uncommon Cistus, as yet only in its second season here, is C. villosus var. albus, a genuine albino form of the species.

A remarkably beautiful shrub that can always be relied on to flower freely in July is Deutzia corymbosa, a Himalayan species introduced a century ago, but not often seen. Its robust, yet elegant habit, large panicles of snow-white flowers with a Hawthorn fragrance, and its reliability and hardiness, should commend this shrub to a wider public. Another Himalayan, but of more uncertain reputation, is Abelia triflora. This deciduous species is quite hardy, but I had had it for so many years without a sight of a blossom that the present season was intended to be its last. However, it has earned a reprieve at the eleventh hour by producing its clusters of tubular, rosy-white blossoms, which, if small, are very sweetly scented. That excellent species, A. Schumannii, has been full of flower since early June, and some young plants of A. floribunda, best and probably the tenderest of all the more showy kinds, are hung with clusters of their long, crimson trumpets. In much the same colour are the Pea-shaped blossoms of Hedysarum multijugum, flopping over an old wall with that untidy looseness of habit that can be the very embodiment of grace. Lithospermum intermedium is draping the stones of a cooler part of the same wall with its glossy, fresh green leafage and masses of blue bugles. Philadelphuses are flowering with their customary vigour, and of the larger sorts grown here, P. Virginal, P. Fantasy and P. Voie Lactée always seem to stand out with distinctiveness and quality, including a refinement of fragrance which has been overlooked in some of the tribe.

Perhaps the most beautiful shrub of the season is Genista virgata, an old bush of twelve feet high and nearly as much across, having been a most arresting object for the last week or two. The soft yellow of its innumerable flowers melts into the flossy silveriness of its foliage with a soft and delicate effect of the utmost charm, and to this colour and unsurpassed elegance in its manner of growth may be added a fresh and delightful fragrance. Rosa moschata also marks the coming of full summer with the bountiful trusses of deliciously-scented blossoms which this magnificent old species will yield with such splendid generosity wherever it can be granted sufficient space. R. lucida and R. nitida also do very well in this dry, hot soil. They follow the R. rugosas in flowering, and R. nitida, grown in a thicket in a sunny spot in the woodland, makes a fine blaze of autumn colour later on. Rhododendron viscosa and R. occidentale come to wind up the season of their kind with Honeysuckle-scented, white or rosy flowers, and the Kalmias of the K. angustifolia type are covered with their rose-crimson clusters. Abutilon vitifolium did not only survive the winter, but it has been flowering well for the past month. Moreover, this very lovely shrub has produced self-sown seedlings, never before seen here, and these also must have come through the frost, for they were sturdy plants of some six inches when first noticed in spring.

One plant of Lathyrus nervosus (Lord Anson's Pea), raised from seed kindly sent me last year by Mr. F. Stewart Sandeman, has produced several clusters of bloom, and these have set seeds which promises to ripen. Susceptibility to frost is, presumably, not one of the troubles of this rare species, for the above plant, in spite of its evergreen growths, endured the winter without injury, while many things usually considered hardy were all but killed in the same border. The flowers of this specimen are a rich purple in the opening bud, the full bloom, one inch across, retaining the same colour on the standard with a paler lining. The wings are a delicate bluish-lavender, and the keel almost white, with lavender shadings.

Primula Florindae is a plant possessing so many attributes that I cannot share the opinions of any who profess to dislike it. In sun-dappled woodland shade, its stately, bright yellow flower heads against Ferns and the water, it is superb. Moreover, it comes at a season when most Primulas are getting over and strong plants will continue to put up their noble trusses of Cowslip-scented blossoms until autumn. P. Florindae is, however, a species for average rather than fat living, it being most attractive when of moderate robustness. Cathcartia villosa follows most of the other Poppyworts as a woodland plant of distinction, its straw-yellow blossoms making a useful colour-break among some of the blue and purple Meconopses. Two shade plants which, if they have not particularly striking flowers, possess an ornamental foliage and a willingness to prosper and bloom late under the drippiest of trees, are Saxifraga tellimoides and Patrinia palmata.

Among rock plants there are few things here at the moment more "distinguished" in appearance than Aster Farreri whose big, shaggy flowers, with their drooping rays of violet and bulging orb of gold, will assert their individuality among any number of rivals. Erigeron caucasicus, for which I have to thank Mr. Ingwersen, has proved itself not only a very charming plant, with flowers of a delicate rosy-lavender, but it is one of those non-stop flowerers which start early and finish late. To the same firm, I am indebted for an introduction to Morina kokanica, and all who have an affection for the old Whorl-flower will appreciate the elegance and refinement of this new species. Hieraciums have a reputation for troubling gardeners as well as botanists, but H. bombycinum, which hails from Spain, has just passed a second season here with nothing but honour to its name. This is a well-behaved Hawkweed with leaves and stems iridescent as spun glass, large flowers of a brilliant yellow and a most commendable habit of preserving intact its rounded "clocks" of seeds until you are ready to go round to gather them.

An exceptionally dry slope, having been deeply worked and supplied with a sub-stratum of retentive material topped with shingle, now presumes, with some success, to be a dry moraine. An occasional soaking in very droughty weather is all it gets in the way of applied moisture. A good many plants which had not been very satisfactory elsewhere are flourishing here, and among them is Campanula barbata, its upright stems hung with bearded bells. Androsace glacialis has struggled into flower and survived the effort. Sedum Praegerianum has tipped the ends of its red cart-wheel growths with pink and white, and the beautiful Bellis rotundifolia var. coerulescens is particularly happy in its new stony home. Scutellaria alpina and the grey-leaved S. orientalis are also doing famously. Stachys corsica, having at last found a refuge from slugs, is making quite a broad mat of its glossy foliage which is studded with pale pink flowers. Aethiopappus pulcherrimus is bearing a sheaf of its fringed, rosy-pink coronets above its finely-cut silvery foliage, and the gold of a Levantine Composite, Odontospermum maritimum, is rivalling the lustrous splendour of Helichrysum bracteatum. In contrast with these, one has the delicate pink of the elegant Chrysanthemum Mawii, the papery-whiteness of Linum monogynum, the pearl-pale cups of L. salsoloides var. nanum, the moonlight pallor of Hypericum olympicum var. citrinum, and the cold white stars of Helipterum anthemoides—a Tasmanian which has proved quite hardy. Rubus parvus has only just gone out of flower at the brink of this sham moraine, and where the Dianthuses are going over are appearing the shrimp-pink blooms of the lovely Acantholimon venustum, and the white flowers of Acanthophyllum spinosum, hovering over their spiny, grass-green pads. Hypericum crenulatum with its fragile daintiness, Geranium argenteum and the beautiful Onosma albo-roseum, are also among those which promise to do well with this shingle treatment. *A. T. Johnson, Ro Wen, Conway, N. Wales.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

JUNE has been a blazing month, extinguishing the flourish* on almost all late-flowering species of Rhododendron, but leaving four at their best to benefit by the refreshing showers of July.

It is well nigh two hundred years since R. maximum was brought to this country from what is now, but was not in 1736, the United States. Linnaeus gave it a specific name, not foreseeing the discovery of Asiatic giants. One does not often meet with it now in British gardens; more's the pity; for a ten-foot bush well set with neat pink or white trusses is a refreshing sight after mid-summer. Another American species, R. viscosum, belonging to the Azalea section, is a charming thing when set with its fragrant clusters of white or white and rose flowers, which, here, are at their best in early July.

Very different from these in dimensions is R. charitostreptum, which we owe to Captain Kingdon Ward, who collected it in 1919, and described it as one of the prettiest dwarf Rhododendrons he had met with. Flowering here for the first time in June this year, that verdict is confirmed by the quality and texture of its lemon-yellow flowers with red anthers. It belongs to the Campylogynum series.

In splendour of colour, none of these may compete with R. Griersonianum, which takes high rank among the many fine things we owe to Mr. Forrest. Here it comes in late June to the best of its long spell of flowering, and whether viewed afar or at close quarters its radiance is superb. Let no flare of Oriental Poppy or vehement crimson Paeony be allowed to clash with the roseate-orange of its great blossoms!

Many trees and shrubs flower at their best only in alternate years. The common Laburnum, L. vulgare, for instance, overtaxed its strength in 1928, and has taken it very easy this year; whereas L. alpinum, commonly known as the Scotch Laburnum, never fails to drape its boughs with the same profusion of long, golden tresses. One day lately, while in a certain famous botanic garden, I longed for a Kodak when a group of botanists were crouching close and stooping round a rare exotic some five inches high, while just beyond them towered a lofty Scotch Laburnum in full bloom, for which familiarity had bred, assuredly not contempt, but temporary indifference.

Some of the Olearias cover themselves with equal abundance of blossom year after year. The display on large bushes of O. macrodonta at the time of writing is amazing, considering the tax imposed annually on the constitution of the plant in producing millions of billions of Daisy-flowers and ripening seeds thereafter. Earlier in the season O. nitida and a little later O. ilicifolia cover themselves with a similar cloud of bloom.

It is more than fifty years since I brought home from the Engadine a root of Centaurea Rhaponticum, a fine species which I have never happened to see in any other British garden. It is a meet companion for C. macrocephala, being of the same height and bearing flowers of similar size and shape, but of a good pink in contrast with the other's yellow. I have never found ripe seeds on it, but it lends itself to increase by division.

Gardeners and amateurs who are alike already indebted to the firm of Rolcut for their introduction to the only perfect form of secateur, will find the tool named "Culterhoe" from the same source, a most effective implement. It is specially fitted for loosening surface soil among Roses or in mixed borders, without injuring the roots of plants. *Herbert Maxwell, Monreith.*

THE GENUS PRIMULA.

(*Continued from p.* 34).

PALMATA (Hand-Mazz.). Palmate P.
(Cortusoides-Geranioides).

A SLENDER, stoloniferous, herbaceous perennial species, with the creeping stolons or rhizomes clothed with minute, triangular scales, furnished with rust-coloured wool on the inner surface. Leaves pale green, rounded, half to three-quarters-of-an-inch across, divided into from five to seven segments, which are again divided into from two to three lobed, or coarsely toothed, segments. Umbel of a few bright rose-coloured flowers, on stalks one-quarter to five-eighths-of-an-inch long. Corolla about five-eighths-of-an-inch across, divided into five broadly heart-shaped lobes, waved and bluntly toothed at the tip; tube slightly longer than the calyx, with a ring in the mouth. Flowers in July and August. Not in cultivation.

Grows in shady places on the mountains near Sungpan, in north-western Szechuan.

Culture: Loose Oak or Beech leaf-soil and a little fibrous loam, in a cool shady spot, are the conditions indicated.

PARRYI (A. Gray). Parry's P.
(Nivales).

This handsome species produces a large tuft of fleshy, narrowly egg-shaped-oblong, blunt or rather pointed leaves six inches to eight inches long, stalkless or narrowed into a broad stalk; margins obscurely toothed or entire; both surfaces smooth or covered with minute down. Flower stem stout, six to eighteen inches tall, bearing an umbel of six to twelve bright purple blossoms. Corolla one to one-and-a-quarter inch across, divided into five broadly heart-shaped, notched lobes; tube cylindrical below, dilated upwards, longer than the calyx. Introduced in 1865. *Gard. Chron.*, Vol. LXXXI, Fig. 16, p. 27, 1927. *Bot. Mag.*, t. 6,185.

Grows on the banks of rocky, alpine streams in the Rocky Mountains, from Colorado, through Nevada, to Arizona, at from 8,000 to 13,000 feet above sea level.

Culture: Rich, somewhat heavy loam, kept moist when the plant is in growth, but well drained in winter, and a half shady spot, may suit this not easily-grown species.

PARTSCHIANA (Pax). Partsch's P.
(Carolinella).

A somewhat robust perennial species with a tuft of papery, rounded or oval-rounded, blunt leaves six to eight inches long and four to six inches wide; they are deeply heart-shaped at the base and are borne on slender, winged stalks six to eight inches long; margins furnished with coarse, blunt teeth or nearly entire; upper surface smooth, underside furnished with rusty down on the nerves. Flower stem five to six inches tall, clothed with rust-coloured hairs. Flowers in a short raceme or elongated umbel, sub-pendulous. Corolla rose-coloured, about five-eighths-of-an-inch across, divided into five nearly square or broadly heart-shaped, very deeply notched lobes, with a small, sharp tooth in the cleft; tube cylindrical, minutely downy, about three-eighths-of-an-inch long. Hook. *Icon. Plant.*, t. 2,775.

Grows in damp, shady places on the Mengting Mountains, in Yunnan, at about 7,000 feet above sea level.

Culture: As for P. megaseaefolia.

PARVA (Balf. f.). Variable P.
(Obconica).

This handsome, deciduous perennial is considered to be a sub-species of P. obconica; it has a woody, somewhat elongated rootstock, clothed with the dried remains of previous seasons, leafage. The thick, glaucous leaves, produced in tufts, have nearly circular blades half-an-inch to two inches across, heart-shaped at the base, borne on slender, hairy stalks from one to six inches long; margins edged with fine, blunt teeth; upper surface clothed with short, stiff hairs; underside with hairs on the veins. Flower stem immersed in the foliage, from half-an-inch to one-and-a-half inch long, hairy, bearing an umbel of two to five pink or lilac blossoms on more or less hairy stalks. Corolla about one inch across, with broadly heart-shaped, notched lobes; tube about half-an-inch long.

Grows in the dry clefts of limestone rocks near Yunnanfu, in Yunnan, western China, at 7,000 to 9,000 feet above sea-level.

Culture: Treat it as a greenhouse plant, and grow it in a compost of loam, leaf-soil and limestone chips.

PATENS (Turcz). Rock P.
(Cortusoides).

A desirable deciduous, perennial species formerly known under the name of P. saxatilis (Kom.), and closely allied to the well-known P. cortusoides. It forms tufts of oblong, or broadly oblong-oval, blunt leaves two to three inches long, somewhat heart-shaped at the base, borne on stalks two to four inches long; margins cut into large teeth or small, crisped lobes, or at times nearly entire; both surfaces coated with fine hairs. Flower stem six to ten inches tall, clothed with fine down, or nearly smooth, bearing an umbel of one to ten deep rose or rose-violet blossoms on fairly long stalks. Corolla about three-quarters-of-an-inch across, divided into five heart-shaped, trilobed, notched segments; tube cylindric, more than twice as long as the calyx. Flowers from March to August. Introduced in 1806.

Grows in clefts in rocks and on their surfaces, in humus and moss, in the Altai, Alascham and Amur mountains, and those of Mandschuria and northern Korea.

Culture: Fibrous loam, peat and sand, in a cool damp spot in the rock garden should suit it; it thrives in a limestone moraine. *A. W. Darnell.*

(*To be continued*).

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* Good Lowland Scots for blossom, adapted, like many other words in our dialect, from the French *fleuraison*.

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PROBLEMS OF PLANT LIFE*

IV.—Concerning Mendelism.

IT would almost seem to be a natural law that the pioneer should be prohibited from enjoying perfect recognition in his own life-time. In biological research one meets with numberless illustrations of this. It is the penalty one has to pay for getting ahead of the general army. The discoverer has often to be himself discovered. But Nature is endowed with a sense of poetic justice, and seldom fails in the long run to rescue her worthy sons from oblivion. To this law Mendel was no exception. It would be a nice subject for discussion to what extent it was well or ill for Darwinism that Mendel's researches were buried out of sight during the days when the Theory of Descent was being worked out by Charles Darwin. For my own part, I think it was well. Darwin was so fair a student that he would have seen the best side of Mendel's work, and would have been tempted to think it not worth while to work out his own theory. Thus we should have been left in large measure deprived of the original researches of Darwin on these lines, and should have had to sustain the loss of his independent point of view, and his interpretation of the phenomena of heredity. Even although it has meant that the lustre of Darwin's name has been dimmed in the eyes of many, particularly those who never accepted his view-point, and rejoiced when it had to be readjusted, yet it is ever a healthy thing to be compelled to look at matters from different points of view.

Before we take up the question of Mendel's own researches, however, we have to give a glance at his predecessors, and see how once and again there was an unconscious foreshadowing of his great discoveries. It will suffice, perhaps, if we take the work of Leeuwenhoek as our point of departure. He was born in 1632, and lived for upwards of ninety years, dying at Delft, his birthplace, in 1723. He held the male element to be active while the female is passive, and that while the actual life comes from the former, the latter merely provides nourishment and the means of development by the agency of the egg. To establish his theory he took a pair of rabbits of different colour. Thus, by mating a grey male with a white female, he secured offspring which were grey like the father. This seemed conclusive, although we now know that if he had carried his experiment further a different result would have been attained.

Passing by some other experimenters, we come, after the middle of the eighteenth century, to Felix Vicq d'Azyr, who was born at Valogne, Normandy, in 1748. He experimented with Tulips, and found that if he crossed white with red, the descendants were white, red and intermediate. This was a step in advance of Leeuwenhoek, and is a clear foreshadowing of Mendel's results, although not carried to the logical conclusion. Kōlreuter is another biologist whose name must be mentioned in this connection. We are told that "for a number of years he crossed different types of Tobacco plants with one another, afterwards, however, proceeding to other plant genera: Pinks, Aquilegia, Verbascum and others. Moreover, he was able to vary his experiments and note the results. He carefully compared the hybrids with the parent individuals and noted the similarities and dissimilarities between them. He mated the hybrids with their parent species and observed the reversion to similarity with the latter. Further, he fertilised the hybrids with one another and obtained results which foreshadowed Mendel's famous observations." But although he did all this, and even noted crosses which at the present day would be regarded as mutations, he failed to utilise the results of his experiments. This was largely due to the views he held respecting fertilisation. Thus he believed that if a species were fertilised with a mixture of its own and foreign pollen it would be possible to obtain a sort of semi-hybrid which would closely resemble the mother species. In spite of this lapse, his methods came to be regarded as the model for such investigations, and held the field until they were supplanted by those of Mendel himself.

It will thus be seen that the way was being gradually prepared for a master mind, leading up to the investigations which were simultaneously carried out in this country by Darwin, and on the Continent by Mendel. To the latter, therefore, we now devote our attention. Mendel who was born in 1822, was named Johann, but in later life adopted the name Gregor. He early showed signs of unusual intelligence, and at the expense of the monastery, of which he became an inmate, at Brünn, in Moravia, was sent for three years to Vienna. On his return he took up educational work, devoting his leisure hours to the scientific study of plants. The results of his researches were not published in any of the well-known scientific journals, and it was on this account that, in spite of their importance, they were hidden for many years from the eyes of experts. The fruit of much research was gleaned in two short essays which were issued in the *Journal* of the Natural History Society of Brünn. These papers show at once a keen appreciation of nature and a thorough knowledge of mathematics. To begin with, Mendel selected certain well-marked characters, such as the colours of the flowers, the structure of the blossoms, the shape and characteristics of the seeds, and studied the results of intercrossing through several generations, until he discovered the laws which underlie their changes and mutations. Thus, for example, he crossed Sweet Peas which bore red flowers with those which were white, and Peas which were wrinkled with others whose skin was smooth, with the result that he found out that they had characters which he designated dominant and recessive.

The rest of the story is well-known. One has only to read the works of Bateson, Punnett, Morgan and others to see how fruitful of suggestion the Mendelian results have proved. These researches have been carried beyond the nursery. Originally undertaken as a special study in plant phenomena, they have been applied with equal success to various forms of animal life, and are even bearing fruit in the realm of eugenics. With their relation to Darwinism we need not concern ourselves. The work is still going forward, and already a considerable library has been formed by the study of Mendelism alone. Of all the problems of plant life, none is more fascinating, and of few can it be stated that their solution has yielded more important results. *Hilderic Friend.*

SOME GARDENING FALLACIES, ANCIENT AND MODERN.

Students of evolution tell us that the dog's habit of turning round and round before settling down to sleep is a survival of the period when its canine ancestors had to shape their bed out of the dense jungle grass. The habit persists, although the necessity for it has disappeared.

A similar explanation may account for a like persistence of ideas that are not based on facts, or any logical deductions therefrom. It will be interesting to study some of these facts from the gardening point of view. Many of them are mere superstitions, but they are, nevertheless, a serious bar to progress. In one form or another these fallacies clog the efforts of the would-be scientific gardener. They account for many of the whimsical opinions of employers, for the fixed determination to do things the wrong way on the part of underlings, and for the inexplicable vagaries of the suppliers of horticultural tools and requisites.

If only one of these fallacies is killed as a result of this article, it will not have been written in vain.

One of the commonest fallacies of the countryside is that a profuse display of berries foretells a hard winter; but the most elementary observer of plant life knows that the berries are the result of past growth and flowering conditions. Yet similar fallacies exist even among educated people who have their letters accepted by the *Times*. For example, a *Times* correspondent recently attributed this year's profusion of flower in the genus Pyrus to the severity of last winter, but it is well-known that the embryo flower bud is produced too early for winter frost to have such an effect. It is true that winter frost, enforcing a period of rest, has an influence—but this influence is not the creation of flower buds to increase profusion of blossom.

A fallacy which seems to exist even in gardening circles is that Mustard and Cress requires to be sown in fine, rich soil to produce a suitable salad. But the seeds contain nourishment sufficient for the plant until the cotyledons have reached the stage when they are useful for salad. Soil is therefore useless, indeed a handicap, as it fouls the produce with grit and prevents access to the maximum amount of water that is beneficial. The best medium is flannel or similar absorbent material stretched tightly over shallow receptacles filled with water.

A number of gardeners seem to be governed by fallacies about mulching. This is a practice which may be as harmful as beneficial if not applied with judgment and intelligence. For example, mulching early in the spring when the ground is cold will prevent the access of the sun's warm rays and the escape of excessive moisture. The same kind of mulch applied later, when the soil is warm, will conserve the necessary moisture and assist growth. Again, many growers apply fresh farmyard manure in the autumn as a protective mulching and especially in the case of Roses. Apart from the debatable point as to whether or not Roses need protecting in winter, it is obvious that a plaster of heavy farmyard manure will keep the ground wet and cold. If protection be needed, a loose covering of dry Bracken will be more effective and will have no undesirable effects.

Many fallacies about watering plants persist, especially among amateur gardeners. Some assume that, following the example of the frequent shower, it is desirable to give plants a little water every day during a long drought. This method encourages surface rooting, and such roots as are attracted to the surface perish for lack of moisture in the fierce heat of a summer day. If water is applied, a thorough soaking should be given, followed by a mulch or the use of the hoe.

The old fallacy that weeding makes soil too dry in the summer is fast disappearing, and the value of the hoe as an agent in conserving moisture is more generally recognised. In some quarters it is still held, however, that weeds are a good substitute for a mulch. This is wrong in a double sense; the weeds rob the soil of moisture for their own needs and also

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* Previous studies appeared in our issues of April 13 (p. 279–80), June 15 (p. 446–7), Vol. LXXXV, and July 13, (p. 30).

remarkable ideas on the perpetuation of plants by seeds, and seem to imagine that our highly developed types of flowers and vegetables may be reproduced without care or effort, so that penny packets should be the normal means of distribution; but students of genetics know that seed growers have many natural difficulties to contend with in keeping their strains of plants up to the high standard of their reputation. Anyone doubting this should simply grow a few plants for seeds of any highly developed Brassica crop in close proximity with a common Turnip or Kohl Rabi, for example, and see how natural intercrossing can reduce the value of the strain.

In the matter of protecting plants, many erroneous ideas exist, one of the most common being that a blanket-like covering which excludes air has the greatest protecting power. A light covering, however, which allows air to circulate is a much better protective agent, and if the heavy cover becomes wet, the plant inevitably suffers worse than if it is given no protection at all.

Many wrong ideas persist about the hardiness of plants, and it is possible that if the subject were properly studied and understood, the loss of many valuable specimens could be averted. It is not, as is sometimes supposed, a question merely of the maximum number of degrees of frost that a plant will withstand without injury; other factors equally as important as temperature are soil, position, age and stage of growth of the plant. Thus, under favourable conditions it is not uncommon for a plant to withstand without injury 10° of frost, whereas another of the same species under a less favourable set of conditions will be killed outright by 5°. The natural hardiness of plants may be reduced in some cases by injudicious pruning of old stems by persons with too great a craze for tidiness. Undoubtedly, these, or the dried leaves they bear, are nature's protection to the plant. On the other hand, the common advice never to prune during frosty weather is probably based on a fallacy. I have consistently ignored this advice and have never traced any ill effects by so doing. The fact that market growers on a large scale never cease pruning during frost supports the view that the practice is not a cause of serious damage.

Garden tools provide many examples of fallacies, some of which seriously reduce the efficiency of the operator. For example, spades are made in three sizes, the largest of which, No. 3, is so unwieldy that the strongest man could not use it without loss of efficiency even on the lighter soils, still less on the heavy ones. The same principle applies to both Dutch and draw hoes, which are made up to ten inches wide. Apart from the impossibility of using a tool of such width with efficiency on fallow land, one would feel many qualms about entrusting such a murderous weapon to a casual worker.

It would seem that the directors of design for the leading tool manufacturers have a mathematical regard for size, but mathematics apart from all other considerations, may mislead, and it is certainly true that practical users of tools are too seldom consulted. As regards tool designers, who was the inventor of the so-called Asparagus knife, and why do gardeners use it? The unsuitability in design of many English tools is all the more to be lamented because the tools themselves are usually of high quality, in fact, they wear extraordinarily well. English knives, for example, are second to none, and even the German tree-pruner has a decided preference for the English pruning knife. But I shall never forget the language of a French gardener who, trusting to the excellency of English cutlery, sent for an English Asparagus knife as advertised; it was justified but unprintable. A more murderous weapon for use in the Asparagus bed it would be impossible to devise, even if the ingenuity of the inventor were bent wholly on destruction. Anyone sufficiently interested to dissect an old Asparagus root will find that the base of the growing head is encircled with buds in various stages of development; how many of these embryo shoots are pulled out by this saw-like instrument when attempting to cut the mature heads for consumption, is beyond anyone's power to compute. Why call it a knife; is it not a saw, and a very bad saw at that? I always use a first-class pruning knife for cutting Asparagus heads, and shall continue to do so until a more serviceable type of instrument for the purpose is introduced.

It may be argued that the purchaser should exercise intelligent selection and that this type of tool would never be produced if it were not found useful. But many amateur gardeners buy without experience, and when experience comes they do not realise, except in a vague way, the energy they are dissipating or the damage they are causing by the use of ineffective tools. Further, in many establishments, the gardener is not privileged to purchase or even select his tools, and once purchased, ineffectual or otherwise, they must be worn out in long-suffering silence. *W. Auton.*

(To be continued).

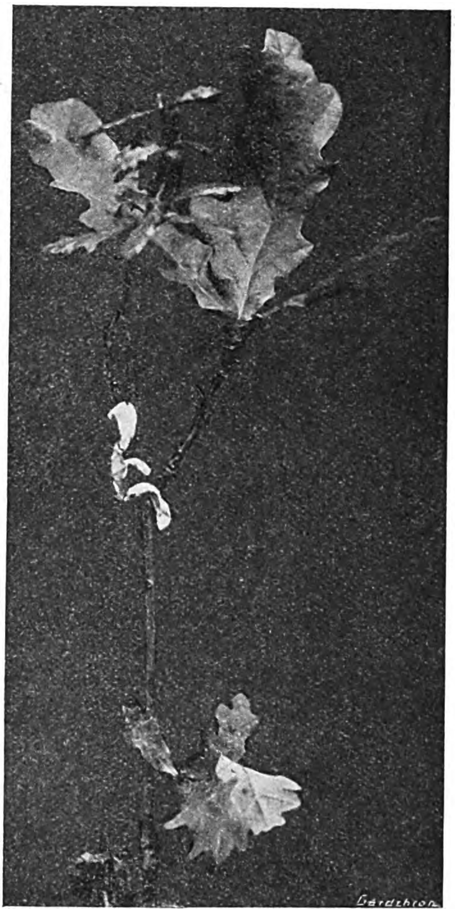

FIG. 27.—OAK MILDEW.

Primary infection; from such a centre the mildew is spread through the nursery.

OAK MILDEW AND ITS CONTROL IN FOREST NURSERIES.

A practical method of controlling Oak mildew, Microsphaera quercina, in forest nurseries has been found, and the results of detailed trials have been published in *Forestry*, Vol. III, No. 1, 1929, under the joint authorship of R. C. Woodward, J. S. L. Waldie, and H. M. Steven. The serious nature of Oak mildew in nurseries has limited the production of good nursery stock and has made the successful establishment of Oak a more difficult problem. Considerable work, entailing careful observations, during the past four years has made it possible to trace the life history of the fungus and as the result of this a new avenue of approach has been opened up for the control of the disease.

The mildew was first observed in England in 1908, and can now be found wherever Oaks are grown in Scotland, England and Wales. It appeared in epidemic form in France in 1907 and spread rapidly throughout Europe from west to east. The winter spore or peritheca stage of the mildew was not seen in Europe until 1911, and since then reports of its occurrence have been made in most of the European countries except Britain, where diligent search has failed, as yet, to reveal the presence of this form of the fungus.

The mildew attacks Oaks of all ages, but it is most serious on Oak nursery stock and Oak coppice. On nursery stock the mildew (Fig. 27) greatly retards growth, and also tends to "kill back" shoots for a considerable distance. On Oak coppice and older trees it is the Lammas shoots, or those which develop during the summer, that suffer most from the disease. When the Oaks have been defoliated by caterpillars or damaged by frost, the second set of leaves is very frequently attacked by mildew. The species of Oak which is most seriously attacked is the Common Oak (Quercus pedunculata); the Durmast Oak (Quercus sessiliflora) is less susceptible, and the Turkey Oak (Quercus sativa) is immune to the disease in this country, although in its native habitat, in southern Austria, it is severely attacked. In Britain the mildew is also found attacking the Beech (Fagus sylvatica) very often on stool shoots as well as on seedlings. The Chestnut (Castanea sativa) has been stated to be susceptible to Oak mildew on the Continent, but so far, it has not been seen in this country, even where Chestnuts were found growing in the middle of plantations of heavily infested Oaks.

It has been found that the mildew overwinters in Britain solely by means of mycelium which becomes established in the axillary or terminal buds at a very early stage in the formation of these buds. Observations have revealed the fact that the young stem itself which bears the mildewed leaves, usually becomes infected, and this often leads to the establishment of the mildew in the axils of the leaves, and in the subsequent infestation of the young axillary buds situated there. The fungus thus established within buds has been found to overwinter between the young leaf tissues in the form of mycelium. The mildew may only enter buds at an early stage and during the short period when the scales provide inadequate protection from invasion. Once infested the buds may retain the mycelium of the mildew in a dormant condition throughout the winter, and it has been found that this mycelium in the buds is revived into vigorous growth in the spring, when great masses of conidia or spores are produced on the young tissues protruding from the buds. These spores are air-borne and infect fresh foliage and other plants and results in the infection of additional buds, so that the disease is thus perpetuated from year to year.

It is to be noted that only a small percentage of mildewed plants—1·5 to 7·6 per cent.—show successful overwintering of the mildew in the buds, but this number is sufficient to perpetuate the disease, and to cause severe outbreaks when conditions are favourable for the rapid distribution of the fungus. The sources of infection in spring, then, are very limited in number, but careful scrutiny will reveal their presence. Such sources are termed primary. Secondary and subsequent infections occur later and are caused by the distribution of spores from the primary centres of infection. The virulence of secondary infections depends very largely upon the weather and environmental conditions.

In 1928, observations revealed the fact that a month or more elapsed before secondary infections became severe, although they were noted, in an inactive state, at the beginning of this period. The length of this period of inactivity undoubtedly changes from year to year, and depends upon climatic conditions largely in so far as these affect the growth of the plants and encourage the production of tissues susceptible to infection. When favourable climatic and environmental conditions obtain the mildew becomes widespread and often very severe.

There are other means by which the Oak may contract infection during spring, but in this country, infection other than that from infected buds, has not been found to occur. It has been mentioned that perithecia have been found in most countries except Britain, and where this spore stage exists it is probable that a means of overwintering is thereby provided. It seems probable that the acclimitisation of the mildew is necessary before perithecia are developed in Britain; until they occur no measures need be taken to afford protection from this source. In Italy, chlamydospores occur, and are stated to play a prominent part in the life history of Oak mildew. These spore-like bodies may be described as thick-walled swellings in the mycelium, and they are stated to drop to the ground with the leaves at leaf-fall, and to cause infection of new growths the following spring. This form of the fungus has not been observed in Britain.

Two parasites of Oak mildew are common, namely, Cicinnobolus Cesatii, de Bary, and a yellow cecidomyid larva resembling a species of Mycodiplosis. The former is thought to be of some importance in suppressing severe mildew attacks during the late summer.

Control of the Disease.

Having studied the life history of the mildew of the Oak, it was found, as already pointed out, that primary infections arising from buds infected a previous season were the only sources of infection in each succeeding year. To combat the mildew, therefore, it was seen that the prevention of the infection of buds would eliminate secondary and subsequent infections contracted from these sources. This it was found impossible to accomplish completely in one season. However, the number of primary infections was reduced by eighty per cent. as the result of one season's spraying. The routine application of sprays year after year would, therefore, greatly reduce the prevalence of the disease in the nursery. Unfortunately, the mildew may be air-borne, and Oak trees situated at a considerable distance from the nursery may provide sources of infection each season. It is, therefore, also necessary to afford protection to the nursery plants from the air-borne spores from neighbouring Oak or Beech trees.

As the result of experimentation with certain spray fluids, it was found that either colloidal sulphur, or flowers of sulphur made up as a paste with calcium caseinate, and diluted at the rate of 2 lbs. to 4 lbs. to 100 gallons, successfully prevented secondary infections, and also protected buds from infestation very satisfactorily (Fig. 28), thus greatly reducing the number of primary infections the following spring. Of the two fluids, it was found that flowers of sulphur with the addition of calcium caseinate was just as efficient, the cheaper of the two, and easily procurable. The use of calcium caseinate as a spreader at the rate of 3 lbs. per 100 gallons, was found to be more practicable and efficient than soft soap. The number of applications necessary per season varies with the growth of the Oak and the amount of infection. Under favourable conditions, one may be sufficient, but usually three to five are necessary, the first one being made when the mildew first appears. It was found that either of these treatments secure that more than half of the plants are kept entirely free from mildew throughout the season, and that there is a significant increase in the dry-weight of the plants, seventy per cent. increase having been recorded. The proportion of plants with good leaders was increased by twenty-two per cent., and thus the amount of good nursery stock was increased, and the number of bushy and unsuitable plants decreased.

Sprays, using one per cent sodium chloride (common salt) and lime sulphur burned the young foliage; flowers of sulphur as a dust was not successful, and ammonium polysulphide only partially efficient. Sheltering of the young plants did not reduce the mildew. *R. C. Woodward, B.Sc., Ph.D. (Cantab.), School of Rural Economy, Oxford.*

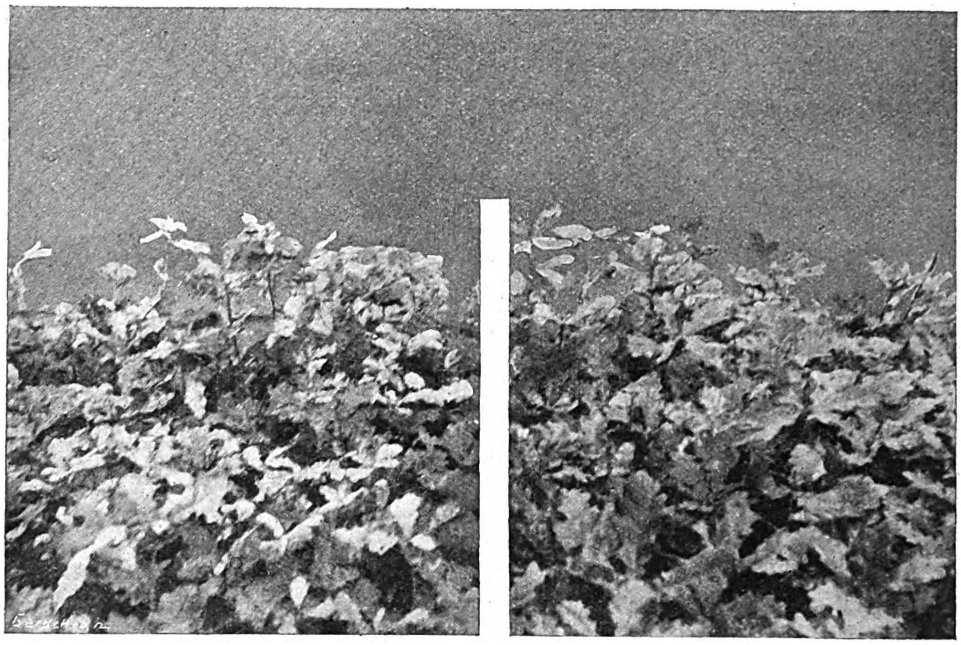

FIG. 28.—OAK MILDEW.

Left: Unsprayed. Right: Sprayed with colloidal sulphur.

MARKET FRUIT GARDEN.

June, which was so dry in some districts, had more than the average rainfall in mine, mainly because of a thunderstorm during the first week. There followed a dry period which soon drew most of the moisture from the soil; but further showers occurred at the end of the month. Nothing suffered from drought, and both tree and bush fruits are looking very well. The rain brought up the weeds in great profusion, so that we had to pay for the easy time experienced earlier, when it was sometimes difficult to find work for horses and men. A more pleasing effect of the moisture was the rapid swelling of the fruits. Apples and Plums are getting quite big; and there was a good crop of Black Currants nearly ready to pick at the end of the month.

Apples Very Heavy.

The crop of Apples is the heaviest I have ever had, and so far the best for quality. I find that, after all, there is a good crop of Cox's Orange Pippin on many trees of this variety. Blenheim Pippin is the only kind of which I have not a full crop. The set is so full, in nearly every case, that the operation of thinning is most formidable. I have four gangs at work on this, and the end seems a long way off. Without thinning, the crop would be almost useless, for there is no demand for small Apples nowadays. Some of the work is being rather roughly done, as I have had to employ any one I could get; but anything will be better than nothing. Beginners are, of course, put to thin the rougher varieties, where they cannot do much harm. Actually, their chief fault is that they do not take off enough. In some cases it means removing nine out of ten of the fruits. There are several little refinements in thinning which one likes to see observed, but cannot expect from casual hands. Naturally, the best Apple should be left to mature; but this is not always the biggest. In some varieties the central fruit in the cluster, while generally the largest, is often thick-necked and therefore unshapely when mature. I had a large number of such fruits in my crop of Cox's Orange Pippin last season, which reduced the number of specimens fit for packing in single-layer trays. Further, if there is any choice, it is well to leave an Apple which hangs downwards, because this is least likely to rub against a branch or to drop later on.

The reason for my heavy crop is not difficult to find. I expected a lot of bloom after last year's dry summer, remembering what happened after the drought of 1921. I felt so sure of it that I had extra orchard boxes and steps made during the winter. The free setting of the bloom can undoubtedly be attributed to the use of plenty of nitrogenous manure shortly before flowering. Many failures attributed to frost are probably due mainly to lack of vigour at this important time. Quick-acting and short-lasting fertilisers are the best to use, as the tree ought to be vigorous at the start of the season, and yet not carry on with growth too late into the autumn.

Pests and Diseases.

The only insect pest much in evidence in my plantations now is Apple sawfly, which is abundant in most places this year. It cannot be stated to have done me any harm, as the bored fruits are removed in thinning; but I never saw so much of it, and it seems to be an increasing pest. Spraying with arsenate of lead just as the last quarter of the petals are falling gave a good control at the East Malling Research Station, but has not given anything approaching complete immunity in my case. How much good it did do I cannot state, as no unsprayed trees were left.

Scab is still hardly to be found on trees that were sprayed only twice. The second post-blossom spray was omitted in all the older plantations on grass, as there was none of the disease showing, and it seemed a pity to risk the application of more lime-sulphur in the hot weather. The younger plantations, under clean cultivation, which are always more liable to scab, received the third spraying, the wash used being colloidal sulphur. This was chosen because it does not spot the under-crop of Black Currants.

A very good control of pests and diseases has been secured by quite a simple programme of spraying. That there was plenty to spray for is shown by neglected trees in the locality. Scab, in particular, has made a somewhat belated but formidable appearance on these; and some orchards have been entirely defoliated by tortrix caterpillars. My programme consisted of winter spraying of everything with tar-distillate. Plums had nothing more. Apples had a pre-blossom spraying with Bordeaux mixture. All received also a post-blossom spraying with lime-sulphur and arsenate of lead; and the younger plantations had the further application of colloidal sulphur mentioned above.

I believe in dilute fungicides and a fairly heavy dose. It seems to me to be essential to wet every inch of the leaves, and this cannot be done on a large scale if any attempt is made at mere dewing over. Tender varieties had Bordeaux mixture at only half strength, 4 lbs. of copper sulphate and 8 lbs. of quicklime (or 12 lbs. hydrated lime) to one hundred gallons of water; and the result is just as good as where the normal mixture was employed. Lime-sulphur was not used at a greater strength than one part in one hundred of water; and for Cox's Orange Pippin, this was reduced to one in 150, again without any difference in results. Probably, however, this was an easy season in which to control scab. Even the tar-distillate I use at only six per cent.

In some years a proportion of the fruits of Beauty of Bath has been badly russetted and even cracked. I have always wondered whether this was spray damage or weather injury. No one has been able to give me a definite opinion, and the two can be very similar. This season, I feel no doubt that the cause is weather, probably frost, because the damage occurs only in the lower part of two plantations, where frost would be likely to be most severe. In one of these spots the leaves surrounding the bloom were badly crippled by frost before any fungicide was applied. There is, this season, just a little of the roughening around the eyes of Bramley's Seedling fruits which is known to be due to frost.

New Spray Fluids.

Work of a very promising kind is being done at the Long Ashton Research Station in the making of new washes. The Long Ashton tar-distillate wash, made from "high neutral" distillate, without the tar acids, has already shown itself in trials to be more effective than the commercial brands of tar-oil wash. This year a remarkably good control of Apple capsid was obtained by the use of this wash at ten per cent. In one case an attack which spoiled eighty to ninety per cent. of the Apples was reduced to three or four per cent. I think I am right in stating, however, that these trials have all been carried out in the West of England, where, for some reason or other, tar-distillate washes have always given a better control of capsids than in the East. The wash is also rather more effective against caterpillars than the proprietary brands.

Another promising "find" at the station is a Rape oil emulsion wash, which seems likely to serve as a cheap substitute for nicotine as a contact insecticide. The latest report from the station contains an account of preliminary work with yet another wash. It has been found that the active principles present in Pyrethrum flowers can be extracted readily by means of light petroleum. The extract can be dissolved in a fatty oil, such as Rape oil, and then emulsified with Agral W.B. An emulsion prepared in this manner, representing a concentration of one per cent. of the original flowers, is rapidly fatal to insects, but causes no damage to vegetation. It is apparently not necessary for insects to be drenched with this wash, for certain beetles died when placed on leaves or soil which had been sprayed a few days previously. English-grown Pyrethrum flowers, by the way, can be employed. *Market Grower.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Violas for Exhibition and Garden Purposes.—I do not consider the selection given in the article on Violas, by Mr. James A. Paice, in your issue of June 8 (p. 422, Vol. LXXXV), a very good one. Some of the varieties he gives for exhibition are not at all good, and are never included in exhibition stands by Viola specialists in the north. They have been superseded by much improved varieties. Again, some of the varieties he gives for garden decoration are altogether too straggly. I append a list which I consider is right up-to-date:—Exhibition Violas:—Chris. Littlejohn, Andrew Jameson, Mrs. M. B. Wallace and Mrs. Andrew Stevenson, fancies; Helen W. Cochrane, white; John Adamson, yellow; Milton Jumbo, purple; Walter Kay, blue; Admiral Hood, Moseley Ideal and May Harvey, yellow, edged lavender; and Mrs. H. J. Milner, Essie Johnston and Janet Stevenson, white and cream, edged lavender. Violas for garden decoration: Redbraes Yellow, Hallidon Yellow and Kingcup, yellow; Mrs. Airdrie and Primrose Dame, primrose-yellow; White Swan, Palmer's White and Lady Tennyson, white; Fred. Williams, Dunbrain and Mauve Queen, mauve; Violet Gem and Jersey Gem, violet; Councillor Waters, purple; Amy Barr, rose; Kitty Bell, lavender; Springwell Bronze and Redbraes Bronze; and Gladys Finlay, Jas. Pilling, Kathleen, Mrs. Marrison and Mrs. T. Douglas, fancies. *W. Thompson, Ardwick, Manchester.*

Labour Problem in Scottish Fruit-growing Districts.—The great problem facing the fruit-growing districts of Scotland during the next few weeks will be a labour one. Mr. Ralph Nunn May, the Secretary of the English National Union of Students, made an appeal in *The Gardeners' Chronicle* of June 29 (p. 479) for employment for poor students during the summer vacation. Mr. May may be interested to learn that the employment of university students during the summer has been in vogue in Scotland for many, many years. Without this aid thousands of "lads o' pairts" now filling highly responsible and influential positions would never have been able to take their degrees. In far-off days, when, for example, the late Sir William Robertson Nicol, editor of the *British Weekly*, was a student, the plan was for students to engage during the summer in farm work, but now-a-days they aspire to more congenial and more lucrative employment. Scottish university students may now be found occupying a variety of occupations, such as pursers and clerks on river pleasure steamers, waiters in hotels at favourite country resorts, and, where the job is only seasonal, relieving clerks in city offices, acting as copyholders to printers' readers during the holiday season, and inspecting gas meters and, of course, there are many who still prefer farm work; indeed, a page of *The Gardeners' Chronicle* could be filled by the many and multifarious jobs the Scottish university student turns to to enable him (or her) to overcome financial difficulties. In recent years Scottish fruit-growers have been introducing student-labour during the fruit-picking season, and they fill the rôle admirably. But there is a great fear among growers this year that the supply of pickers will not meet the demand, and be sufficient to go round. Some idea of the requirements during the short season may be gathered when it is stated that some fruit-growers will require 400 workers. The picking season is a most precarious one, for a day's delay in picking the fruits may mean the loss of hundreds of pounds to the grower, hence the anxiety in fruit-growing circles. The area under fruit has been greatly extended of recent years, and at least fifty per cent. has been added to the acreage during the last three years. How important the industry is to Scotland will be understood when it is stated that considerably over £60,000 was realised last year by the Blairgowrie district of Perthshire alone. Within recent years the district of Coupar Angus has become a formidable rival to Blairgowrie, and the erection and opening of a new factory at the former place for pulping the fruits and thus easing transport difficulties may well mean Blairgowrie ultimately taking a secondary place in the industry. The development of the industry proceeds apace in Scotland, and apart from the entry of Coupar Angus, we have Alyth, around Kirriemuir—Sir James M. Barrie's home-town—and Aberuthven districts making ambitious efforts, and wonderfully successful ones, too, to take a place in the fruit-growing sun. All these districts, be it noted, are within a few miles radius of Blairgowrie, this making Raspberry-growing and Blairgowrie synonymous terms. The wages paid to the pickers are very good, and even an inexperienced worker can earn from 7s. 6d. to 10s. a day. Of course, accommodation is provided in the chief centres, and shops and a post office find their place in the economy of things during the fruit-picking season. *W. K., Aberdeen.*

Meconopsis betonicifolia var. Baileyi.—In your issue of June 22 (p. 466), I was pleased to see a correspondent's remarks about Meconopsis betonicifolia var. Baileyi at Wisley. About a month ago, a batch of this Meconopsis flowered in the rock garden at Bellahouston Park, Glasgow, and the visitors were absolutely enchanted with it. Practically every visitor passed remarks to the effect that they had "never seen anything like it before." They were not surprised, however, at seeing something comparatively new in cultivation, for this is typical of the Glasgow Parks. There is always something fresh and bright to be seen there, so that, when the tired city worker takes a walk through them, he finds many surprises in the way of beautiful flowers, shrubs and trees. *R. C. McMillan, Ibrox, Glasgow.*

Large Magnolias.—Referring to your illustration (Fig. 218, in *The Gardeners' Chronicle* of June 8), may I state we have a Magnolia conspicua thirty-three feet in height, twenty-eight feet across, and twenty-eight inches round the trunk. It branches six feet from the ground, and has a circular and evenly balanced head. It is about one hundred years old. I have also a Tulip Tree (Liriodendron Tulipifera) seventy-six feet in height, fifty-nine feet in breadth one way, and sixty-six feet another way; this tree is more than one hundred years old. There is also a Sequoia gigantea, ninety feet in height and thirteen feet in circumference of trunk; this grows on the same lawn and is about the same age as the Tulip Tree. Your very interesting paper is always a pleasure to read. (*Mrs.*) *S. Thatcher, The Manor House, Chew Magna.*

VEGETABLE GARDEN.

LETTUCE LEE'S IMMENSE HARDY GREEN.

This useful Lettuce should be more widely grown than it is. It is extremely hardy. I had a bed of it planted out in October, 1928, under a south-west wall, and at the beginning of March last they were difficult to find. However, a good hoeing in early April and a light sprinkling of sulphate of ammonia soon caused a great change, and by the third week in May I was cutting fine quality hearts averaging about eight ounces in weight.

Seeds are best sown about mid-August. A good companion to this Lettuce is Hick's Hardy White Cos, and a well-prepared and sheltered border planted with these two Lettuces should prove of great value for providing a crop in the spring.

BROCCOLI SPITALFIELDS MARKET.

The past February provided a severe test to Broccoli, and in many cases whole breadths were killed owing to the severity of the weather.

Many growers have for years put their faith in Knight's Protecting Broccoli and, admittedly it is a grand variety, but my greatest success during the past May and June was with the variety Spitalfields Market; in a bed of one hundred plants only five were lost, whereas, with Knight's Protecting, only ten per cent. came through the ordeal, and these were all damaged.

Spitalfields Market is a rather dwarfish variety and the heads are well protected. It may be planted late (mine were put out in August) and its habit permits of closer planting than any other variety I know. Firm planting is, of course, a great factor in ensuring success. *G. W. Stacey, Chorley Wood Cedars.*

SOCIETIES.

NATIONAL ROSE.

Only once before has the National Rose Society visited Hereford for the purpose of holding its Provincial Show in that ancient city, and that was so long ago as 1891, since when the Society has grown enormously, both in importance and membership, so that the show held at Hereford, on the Castle Green, and in the shadow of the monumental Cathedral, on July 10 and 11, was a grand affair, and well worthy of the Society.

The trade was strongly represented in the nurserymen's section, and in many of the amateurs' classes the exhibits were numerous and competition keen, while the new seedling Roses put up for awards were also plentiful, Messrs. S. McGredy and Son showing a very big selection of grand sorts. The quality of the blooms throughout the show was high and competition in many instances very keen. The exhibition was held in conjunction with that organised by the Hereford and West of England Rose Society.

Gold Medals.

Mrs. Sam McGredy.—A grand Rose of dazzling colouring, glowing orange-red, shading to rich apricot, the reverse sides of the petals being heavily suffused with red. It is a shapely flower, both in the bud and when fully open, and has a great future before it.

Portadown.—This lovely Rose has already received a Certificate of Merit from the National Rose Society, and it well deserves the higher award now bestowed upon it. Of grand form, it has rich red, velvety blooms, large and full, and of grand texture; they are carried well on strong, stiff stems which are well furnished with large, dark green foliage. (An illustration of this Rose appeared in our issue of June 21, 1928, Fig. 18, p. 45.)

James Rea.—Another grand Rose, beautiful in the bud, and opening into a large, full bloom. The colour is a rich, glowing deep rose, and the arge petals are of firm texture. These three H.T. Roses were exhibited by Messrs. S. McGredy and Son.

Certificates of Merit.

Mrs. C. Aveling.—A lovely semi-double H.T. Rose of vivid colouring, the petals being a glowing orange-red, shading to yellow at the base; a striking Rose. Shown by Messrs. Bees, Ltd.

Lieut.-Col. A. Fairrie.—A beautiful Rose of delicate colouring and good form, both in the bud, which is very shapely, and when opened. It is pale cream, flushed with apricot. Also shown by Messrs. Bees, Ltd.

Molly Darragh.—A large Rose of bright colouring, the broad petals being creamy-yellow at the base, gradually shading to rich rose at the margin. Shown by Messrs. S. McGredy and Son.

Other Novelties.

Mr. George Prince showed blooms of Yadil, shapely both in the bud and when fully open, and of rich colouring; being creamy-yellow and rich orange-apricot, turning paler when fully opened.

Messrs. Frank Cant and Co., Ltd., showed three new H.T. seedlings, namely, Dorothy Hodgson, rich rose in colour; Doy, a shapely Rose, cream, tinged with palest apricot, and Rose Merk, of only moderate form but of rich colouring, being glowing red, with a slight plum sheen on the outer petals.

Marion Horton was one of the good novelties shown by Messrs. Bees, Ltd.; it is a shapely Rose, rich yellow in the bud, with orange-red guard petals, and creamy-yellow with a darker centre, when fully open. They also showed George Howarth, a large Rose of good form and vivid cerise-red colour; and Mrs. J. D. Russell, rich red, with the guard petals slightly velvety.

Messrs. Dobbie and Co., Ltd., showed two good sorts in Marchioness of Linlithgow, rich velvety-crimson and of good form; and Duchess of Montrose, of unique form, with broad, wide opening petals, rich, glowing red in colour.

Besides those which received awards, Messrs. S. McGredy and Son had many other grand seedlings, the best of which were Patience, of grand form and rich colouring, deep orange at the base, gradually shading to orange-pink; W. E. Nickerson, pale pink, with just the slightest suggestion of salmon; Cherry Improved, a temporary name for a beautiful Rose of rich colouring and grand form; Fortitude, a grand Rose with a future before it, pure white, with a delicate tinge of flesh-pink at the tips of the enormous petals; Tom Barr, of rich and delicate colouring; Portadown Scarlet, Portadown Fragrance, rich salmon-pink shading to cerise-pink; Betty Sutor, rich rose in the centre, with reflexed, pink outer petals; Portadown Bedder, a good garden sort where colour is required; Mrs. S. Paton, of good form, with frilled petals, rose-salmon in colour; and Leslie Dudley, rich salmon-pink and shapely both in bud and when fully open.

Nurserymen's Classes.

There was only one entry in the premier competition for nurserymen, for the Jubilee Trophy, and this was by the King's Acre Nurseries, Ltd., who set up a very meritorious group, which was awarded the Cup. They had a huge central basket of Shot Silk at the back (had it been tilted slightly it would have been more effective), with grand pillars of Christine, Betty Uprichard, Golden Emblem, General McArthur and Mabel Morse. There were lovely, well-placed baskets of Madame Melanie Soupert, and Mrs. Henry Morse, while the best of the numerous other sorts displayed, in quality of the blooms, were Scarlet Glory, Lady Pirrie, Shot Silk, Covent Garden, Sunstar and Lady Inchiquin.

Mr. George Prince was deservedly placed first in the class for a group of cut Roses, twenty feet by four feet, for he put up a magnificent display of blooms in perfect condition. The background consisted of massive pillars of Dainty Bess, K. of K., American Pillar, Climbing Golden Ophelia and Climbing General McArthur, with a central basket of Mabel Morse above a mass of grand blooms of the *Daily Mail* Scented Rose, a variety which Mr. Prince has exhibited extensively this year. The corner pillars were of Betty Uprichard and Mrs. Henry Morse; there were beautiful baskets of Shot Silk, and grand vases of Angele Pernet, Colonel Oswald Fitzgerald, Lady Inchiquin, Lady Roundway, Hortulanus Budde, Elizabeth Arden and I. Zingari, with many others.

Messrs. J. Jefferies and Son, Ltd., secured second prize, their well-arranged group having central baskets of Rev. F. Page-Roberts and Mrs. Beatty, separated by a pillar of bright blooms of Lady Mary Elizabeth, at the front, while behind these was a series of pillars of grand blooms of Mrs. Herbert Stevens, Shot Silk, Hortulanus Budde, Angele Pernet, Ivy May and Emma Wright, with side baskets of Los Angeles, W. Kordes, Admiration and Lady Inchiquin.

Mr. H. Drew secured the premier award in the class for a group ten feet by four feet, his best blooms being of Betty Uprichard, Mrs. Henry Morse, White Maman Cochet, Golden Emblem and Admiration.

In the class for five baskets of cut Roses, distinct, Mr. W. Drew was first with a grand set, his varieties being Ethel Somerset, Golden Emblem, Hortulanus Budde, Ivy May and Betty Uprichard; second, Mr. H. Drew, while for three baskets, distinct, Mr. J. Mattock was awarded the first prize, for grand baskets of Shot Silk, Golden Emblem and Lady Inchiquin, the King's Acre Nurseries, Ltd., being placed second. Mr. J. Mattock was also first for twenty-four vases, distinct, his best blooms being of The Queen Alexandra Rose, Shot Silk, Doris Trayler, Ivy May and Golden Emblem; second, Messrs. J. Jefferies and Son, Ltd.

Many grand blooms were displayed in the classes for exhibition Roses in boxes. Messrs. Frank Cant and Co., Ltd., showed the best set of thirty-six, their specimens of Portadown, Augustus Hartmann, Mrs. Henry Bowles, Mrs. A. R. Barraclough, Lady Roundway and Lady Inchiquin being outstanding; second, Mr. W. Drew; third, Mr. H. Drew; while for twenty-four blooms, Mr. G. Prince was first, his best being Lord Lambourne, Lady Inchiquin and the *Daily Mail* Scented Rose.

Messrs. Frank Cant and Co., Ltd., led for twelve blooms of new Roses distributed since January 1, 1925, showing grand blooms of Portadown, Empire Queen and Aphrodite in their set; second, Mr. G. Prince, and third, Mr. W. Drew.

For two baskets of exhibition Roses, distinct, Mr. W. Drew was first, with Lady Inchiquin and Mrs. Henry Morse; the King's Acre Nurseries, Ltd., second, showing Earl Haig and Dame Edith Helen; and Messrs. Frank Cant and Co., Ltd., third, displaying Dorina Neave and Mrs. Henry Morse. Mr. J. Mattock led for one basket, with grand blooms of Mrs. Henry Morse; second, Mr. George Prince; the latter exhibitor, however, secured the premier award for one basket of a variety not yet in commerce, showing Elizabeth Arden, a grand white Rose which received a Gold Medal at the Society's show at Chelsea (see p. 38); Messrs. Bees, Ltd., were second, showing the variety Mrs. C. Aubrey.

Mrs. A. R. Bide was first for a decorated dinner table, using good blooms of I. Zingari very effectively, Mr. H. Drew secured the second prize; while Mrs. Bide was also first for a decorative bowl of cut Roses, her variety being Emma Wright; second, Mr. J. Mattock; and third, the King's Acre Nurseries, Ltd. Mr. J. Mattock was first for a decorative vase of Roses, Mrs. Bide and Mr. H. Drew being second and third, respectively.

Amateurs' Classes.

Three lovely groups were staged in the premier amateurs' class, the Jubilee Trophy being awarded to Mr. G. Marriott, Carlton, Nottingham, for a very tastefully arranged and bright display, in which the varieties Mabel Morse, Los Angeles, Doris Trayler, Ivy May, and K. of K. figured prominently. The second prize was awarded to Mr. J. E. Rayer, Worcester, who had many grand blooms, and the third to Mr. Allan Gibbs, Lisvane, Glamorgan, who showed American Pillar, Emily Gray, Mrs. Henry Morse, Francis Gaunt and Ophelia, in splendid condition.

Mr. G. Marriott also secured the premier award for two baskets of cut Roses, distinct, showing Los Angeles and Golden Emblem. Mr. J. E. Rayer was first for one basket, distinct, and Miss N. M. Bird, Hereford, led for one basket of one or more varieties, the second prize in this class going to Canon A. Claude Davies, Studley, Warwickshire.

Several good sets of blooms were staged in the classes for exhibition Roses in boxes, although in none of them was competition very keen.

Mr. J. E. Rayer showed the best twenty-four blooms, his best being of Mrs. A. Barraclough, Mildred Grant, Mabel Morse, Earl Haig, Lord Allenby and Coronation; Mrs. W. Jarrett-Thorpe, Hucclecote, Gloucester, was placed second; while the best set of twelve blooms was that staged by Mr. Allan Gibbs, who had grand blooms of Lady Inchiquin, Lady Alice Stanley, Mabel Morse and Mrs. John Laing; second, Mr. Norman Fletcher, Farringdon, Berkshire.

Mr. H. Jerrams was awarded the first prize for six blooms, while in the class for amateurs who had not previously won a first prize at a show staged by this Society, the requirements being six blooms of distinct varieties, Mr. J. G. Orpen, Carlton Road, Gloucester, was first, with good specimens of Mrs. Charles Lamplough, Mildred Grant, Marcella, George Dickson, J. G. Glassford and Mrs. G. Shawyer; Mr. H. Jerrams, was second; and Canon A. Claude Davies, third.

In the classes for amateurs who grow and stage their own Roses, Mr. J. G. Orpen was first for twelve blooms, distinct, his best varieties being Mrs. Charles Lamplough, Mrs. Foley Hobbs and Marcella; the second prize being awarded to Mr. Norman Fletcher, and the third to Mr. F. Hopcroft, Prestbury, Gloucester, both of whom had very good sets. Mr. H. Jerrams showed the best set of six blooms, these being of C. E. Shea, Mrs. Foley Hobbs, Melanie Soupert, Dean Hole, Frau Karl Druschki and Souvenir de Claude Pernet; while Canon A. Claude Davies was first for six blooms, in not less than four varieties, his best being of Admiration, Mabel Morse and Mrs. Henry Bowles; second, Mr. N. Oliver, Kingston, Herefordshire.

The Ladies' Artistic Classes were, as usual, very popular, and many charming displays were arranged. There was a large number of decorated dinner tables, the best being that attractively executed with lovely blooms of Madame Butterfly, by Mrs. Courtney Page. Miss G. M. Zelley was placed second, Miss M. M. Armitage, Hereford, third, and Miss Newsham, Aughton, near Liverpool, fourth. There was an abundance of very charming exhibits in the class for a decorative bowl of cut Roses, Mrs. Courtney Page again securing the premier award, this time with lovely blooms, charmingly arranged, of Mrs. C. E. van Rossem and Margaret McGredy; second, Miss Newsham, and third, Miss G. M. Zelley. Mrs. Courtney Page was first for a vase of cut Roses, her variety being Madame Butterfly, while in the class from which this exhibitor was excluded, namely, that for lady amateurs who had never won a first prize in the decorative section at any show held by the Society, Mrs. H. B. Dickinson, Eaton House, Hereford, staged the best decorative bowl of Roses; Mrs. Norman Fletcher securing the second prize, and Mrs. R. W. Faulkes, the third.

NATIONAL SWEET PEA.

The Provincial Exhibition of the National Sweet Pea Society was held at Eaton Park, Norwich, in conjunction with the show of the Norfolk and Norwich Horticultural Society, which was celebrating its centenary.

We have seen better and more extensive Provincial Shows, but considering the difficulties of the season, the show was a good one and fairly well filled the large tent set aside for it. A few competitors fell out at the last moment; nevertheless, the display was a bright and attractive one, and the competition quite keen in many of the classes. The arrangements were carried out well by the Secretary, Mr. A. C. Bartlett, and the numerous members of Committee present with the President, Mr. Harold Beale.

Open Classes.

The President's Prize, a piece of plate presented by Mr. Harold Beale, was won by the Hon. Arnold Henderson (gr. Mr. G. H. Starling), Writtle Park, Chelmsford, with a dozen bunches of superbly grown flowers of International, Flaming June, Idyll, Gladys, Jack Hobbs, Pinkie, Vectis, Olympia, Charming, Youth, Mrs. A. Searles and Tom Webster—a glorious set. The second prize fell to W. F. Franks, Esq. (gr. Mr. W. Humphrey), Loampits, Tunbridge Wells, who had fine vases of Royal Pink, Magnet and Glorious; third, S. Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex; fourth, Leonard W. Butcher, Esq. (gr. Mr. W. Tizzard), Campfield Place, near Dorking; C. H. Walter, Esq. (gr. Mr. H. W. Reynolds), Drayton Old House, Norwich, Highly Commended.

Mr. Wallrock led for six bunches, distinct, with capital flowers of Mrs. A. Searles, Magnet, Youth, Powerscourt, Crusader and Valetta; second, the Hon. Arnold Henderson, who had a fine vase of Jack Hobbs; third, W. Huffey, Esq., Boormans, Yardley Place, Tonbridge; fourth, Mrs. C. Pearson (gr. Mr. C. Hodgson), Acton Place, Sudbury, Suffolk.

Mr. Wallrock was also successful in the class for three bunches, distinct, with fine blooms of Powerscourt, Mrs. A. Searles, Mrs. Arnold Hitchcock; second, Mr. W. Huffey; third, Mrs. C. Pearson; fourth, W. Martineau, Esq., The Chestnuts, Boxmoor.

In the raisers' class for six distinct varieties raised by the exhibitor, Messrs. E. W. King and Co., Coggeshall, were the only exhibitors, and well deserved the award for their set of Jack Hobbs, Vectis, Yule Log Glow (rich scarlet), Olympia, Pimpernel and Leslie Rundle.

For three vases of Sweet Peas, named seedlings, Messrs. E. W. King and Co., again led, showing Souvenir, Sonny Boy and Big Ben; Messrs. Stark and Son, second, with Leviathan, Rose Marie and Flame of Fire.

For one vase of a new seedling, Messrs. E. W. King and Co. were again successful, showing a vase of the lovely Pink Glow; the Southfield Nurseries, Netley Abbey, were second, with Michael, orange-salmon.

District Classes.

There was good competition in the Eastern Counties class for six vases, distinct, and here the Hon. Arnold Henderson led, his best flowers being of Magnet, Pinkie and Vectis; second, Mrs. C. Pearson; third, L. H. Powell, Esq. (gr. Mr. M. A. T. Pye), Inworth Hall, Kelvedon.

In the Midland Counties Class, Major H. W. Barnes (gr. Mr. E. H. Welkam), Stonecroft, Ipswich, was disqualified, on geographical grounds. The first prize was therefore awarded to Mr. J. Randall, Leamington; second, Mr. J. O. Smith, Shrewsbury.

Mr. W. F. Franks won the premier award for six vases, distinct, in the Southern Counties Class, with large, clean flowers of Powerscourt, Mammoth, Youth, Glorious, Venus and Magnet; second, Mr. S. Wallrock; third, Mr. L. W. Butcher.

Small Growers.

In the "small growers'" division, Mr. J. Randall had the best dozen bunches, distinct, and had good vases of Grenadier, Charming and What Joy; second, Mr. Claude R. Jaggs, Hertford Heath, Hertford.

The first prize for six vases was awarded to Mr. C. R. Roberts, Trunch Tee, Mundersley; he had good, long-stemmed trusses of Mammoth, Powerscourt, Mrs. A. Searles, Youth and Pinkie, but his Royal Mauve was not so good; second, Mr. C. R. Jaggs; third, Mr. J. O. Smith, Shrewsbury.

Mr. W. C. Roberts showed the best three bunches—Magnet, Powerscourt and Bluebell; second, Mr. M. K. Franks, Leatherhead; third, Colonel E. W. Skinner, Marlow, Bucks.

Among those who had not previously won a first prize at an N.S.P.S. show, Maurice K. Franks won first place for six vases, distinct, and he was well ahead of Mr. G. W. Miller, Scarning, Wareham, and Mr. J. O. Smith, who were placed second and third, respectively.

Mr. G. L. Miller led for six vases of fifteen sprays each; second, Mr. H. C. Dawes, The Durdans, Mundesley; third Mr. Charles Denny, Diss, Norfolk.

Colour Classes.

In the single bunch colour classes, Miss Russell, Canterbury, led for white, with Vectis; Major H. W. Barnes, for pink, with Magnet; Mr. W. Huffey, for lavender, with Powerscourt; Mr. S. Wallrock, for mauve, with Royal Mauve; Miss Russell, for cream, with Ivory Picture, and for orange, with Royal Sovereign; Mr. W. F. Franks, for crimson, with Honour; Miss Russell, for scarlet or orange-scarlet, with Flaming June; Miss Russell, for maroon, with Warrior; Mr. W. Huffey, for Picotee-edged, with Youth; and Mr. W. Franks, for blue, with Gleneagles.

Decorative Classes.

Mrs. C. H. Rundle, Barton Court Gardens, Canterbury, led for a bowl of Sweet Peas, with an arrangement of salmon, cream and mauve flowers; second, Miss Gladys Burt; third, Miss Mavis Burt.

The best vase of Sweet Peas was shown by Mrs. C. H. Rundle, who had mauve and pink flowers; second, Miss Mavis Burt; third, Miss Gladys Burt.

Scarlet and pale mauve flowers were used by Miss H. Cross, Arminghall, Norwich, in her first prize table collection of Sweet Peas; second, Mrs. H. Harrowven, Old Catton; third, Mrs. W. Lee Spink, North Dene, Great Yarmouth.

Trade Displays

Messrs. Sutton and Sons were awarded a Gold Medal for a large group of bouquets of Sweet Peas, arranged at varying heights, at one end of the tent. Their leading sorts were Idyll, Powerscourt, Colorado, Pinkie, Mammoth and Royal Mauve.

Messrs. E. W. King and Co. received a Gold Medal for a group of fine blooms arranged in bowls; leading varieties were Big Ben (Award of Merit, 1929), Jack Hobbs, Gladys, Leslie Rundle, Souvenir, Guardsman, Pimpernel, Yule Log Glow and Huntsman.

Mr. R. F. M. Wiltshire, Southfield Nurseries, Netley Abbey, was awarded a Silver-gilt Medal and Messrs. Stark and Son, Great Ryburgh, a Silver Medal, for groups of Sweet Peas.

Messrs. James Carter and Co., Raynes Park, showed large bunches of good blooms of Flaming June (Gold Medal, 1928-9), Sweet Seventeen and Porcelain.

READING GARDENERS'.

The first evening meeting of the summer session was held by the kind permission of Messrs. Sutton and Sons at their Trial Grounds, London Road, Reading, in late June, when there was a record attendance of about one hundred and fifty members, including the President, Mr. Frank E. Moring, the Chairman, Mr. W. Broomfield, and the Vice-Chairman, Mr. E. Blackwell.

After inspecting the large collection of Sweet Peas grown for exhibition purposes, the party proceeded to the very interesting trials of Lettuce and culinary Peas. Special interest was taken in the Vegetables growing for exhibition, especially noticeable being the large pods of Sutton's V.C. Pea. On the way to the glasshouses splendid batches of Sweet Williams, Delphiniums, Canterbury Bells and Phacelia campanulata were noted.

In the houses the Begonias and Streptocarpuses were exceedingly fine, while the seedling Gloxinias, although not in flower, gave promise of a beautiful display in the near future.

The opportunity was taken to hold a Sweet Pea Competition and three classes were arranged. In Class 1 (open), for three vases of three distinct varieties, twelve sprays to a vase, there were four entries and the first prize, which included the National Sweet Pea Society's Silver Medal, was gained by Mr. A. W. Gower, Calcot Grange Gardens, with splendid blooms of Pinkie, Constance Hinton and Mrs. A. Searles. The second went to Mr. Tuffin, Iris Court Gardens, Pangbourne, and the third to Mr. A. H. Dow, Suthampstead House Gardens.

In Class 2 (open), for one vase, mixed colours, of eighteen sprays, there were three entries and the prizes were awarded as follow:—First, Mr. R. G. Taylor, Highgrove Street, Reading; second, Mr. H. Reeves, Broadfield, Northcourt Avenue, Reading, and the third, Mr. A. Dow, Junr., Suthampstead.

In Class 3, for single-handed gardeners only, for one vase mixed colours, eighteen sprays to a vase, there was keen competition. Mr. F. Haines, Calcot Hanger Gardens, was first; Mr. A. Terry, Hawthorn Cottage, Earley, second; and Mr. H. Oliver, Earley Road, Reading, third.

Before the party separated, the President, on behalf of the members, tendered to Messrs. Sutton and Sons a hearty vote of thanks for enabling them to spend such an interesting and enjoyable evening. A similar vote was extended to the members of the staff who had so kindly interested themselves in the visit.

A party of between sixty and seventy members of the Reading and District Gardeners' Association recently visited the Lodden Nurseries, Twyford, by kind permission of Mr. H. Carlile, who met the party on arrival and conducted it to the Delphiniums, which are grown in thousands. The chief characteristics of the different varieties were pointed out, and although space will not permit mention of all the excellent varieties seen, the following certainly stood out most prominently, viz., Triumph, Norah Ferguson, Mrs. Carlile, Fair Lady, Blue Bird

Blue Queen, Dorothy Richardson, Lodden Guard, Lord Derby, George Cochrane, Lady Prince and Gloriosa, while the collection of new varieties not yet in commerce included such beautiful types as Eve, Lord of Lodden and June.

Leaving the Delphiniums, the members proceeded to the Gaillardias, Scabious caucasica, Linums, Helianthemums, and a host of beautiful subjects suitable for the rockery.

After partaking of refreshments kindly provided by Mr. Carlile, another treat was in store, for he had arranged for motor-coaches to convey the party to his Chalk Hill Nurseries, Reading, where about one hundred varieties of Delphiniums are grown for exhibition purposes. Needless to state, these were in the pink of condition and called forth much admiration. Before separating, Mr. Broomfield (Chairman) voiced the thanks of the members to Mr. Carlile for the interesting evening and his hospitality.

NORFOLK AND NORWICH HORTICULTURAL.

In the spacious Eaton Park, Norwich, the Norfolk and Norwich Horticultural Society held its Centenary Exhibition on July 11 and 12. Four large tents were used, and these were arranged in opposite pairs, with plenty of space between them. An interesting coincidence was that the present President, Major E. H. Evans Lombe, of Marlingford Hall, Norwich, had an ancestor who was the first President of the Society, a century ago, indeed, Edward Lombe was President in 1829, 1830 and 1831.

The exhibition was a good one, although owing to the untoward season, it failed to reach the high standard of excellence anticipated by the Society, for in Norfolk, as elsewhere, gardeners are largely in the hands of the clerk of the weather. To celebrate the occasion, the National Sweet Pea Society held its Provincial Show at Eaton Park, the National Rose Society sent a deputation, and to crown all, a deputation of the Council of the Royal Horticultural Society went and made special R.H.S. awards to deserving exhibits. This deputation consisted of Mr. E. A. Bowles, Mr. Thomas Hay, Mr. W. Cuthbertson, Mr. G. W. Leak, and Mr. A. Simmonds, the Assistant Secretary of the R.H.S.

The weather was propitious; indeed, the opening day was one of the most summer-like yet experienced. The attendance was good, notwithstanding the long distance from the centre of the city to Eaton Park.

The President, Vice-President and Committee of the Norfolk and Norwich Society entertained their visitors to luncheon, and following the lunch, we heard a series of the most entertaining speeches we have heard, at one sitting, for a very long time. Evidently the air of Norwich is conducive to witty oratory.

Roses.

In the open classes, Messrs. Frank Cant and Co. were highly successful, winning first prizes for thirty-six blooms, distinct, with Coronation and Mabel Morse, in fine form; for six distinct varieties, three blooms of each, with Mrs. Charles Lamplough, Mabel Morse and Mrs. H. Morse, conspicuously good; for a dozen distinct varieties; and twelve blooms in not fewer than eight new sorts.

Messrs. H. Morse and Sons, Eaton, led for three baskets of cut Roses, the varieties exhibited being Golden Emblem, Portadown and Lady Beatty; second, Messrs. A. J. and C. Allen. The best eighteen decorative Roses were from Mr. E. Le Grice, Roseland, near Walsham.

For an arrangement of Roses on a space six feet by two-and-a-half feet, the first prize was won by Mr. E. Le Grice, whose pillars of Desmond Johnston and basket of Betty Uprichard were particularly effective; second, Mr. E. W. Parkin, Swardeston.

In the amateurs' division, Dr. E Deacon (gr. Mr. Baldwin) won first prize with a fine lot of flowers in the class for eighteen blooms, distinct. Dr. Deacon was also successful in the class for six varieties of Roses, three of each, and his set included a very fine example of Mrs. Barraclough. Mrs. Campbell Steward, Sarlingham, led for a dozen blooms, distinct, and Mr. Henry Johnson was placed first for six distinct varieties, and included Paul's Lemon Pillar in good form.

In the small growers' classes, E. C. Shaw, Esq. (gr. Mr. M. A. West), Carlton Colville, won the premier award for twelve blooms, and showed Mabel Morse, Admiration and Rev. F. Page Roberts in fine form; second, Rev. A. Garry Copeman (gr. Mr. W. H. Wilson), Thorpehurst, Thorpe. In the same section, Mr. F. Harrison, Old Catton, and Mrs. Johnson, were also prize-winners.

In the Norfolk County Classes the premier award for a group of Roses arranged on a space five feet by two-and-a-half feet, was won by R. G. Coller, Esq. (gr. Mr. H. Spurgeon), Wroxham, with a quaintly designed display of pleasing flowers—a sort of cairn of Rose blooms. Mrs. Campbell Steward led for six blooms and in another class for six flowers, Mr. J. C. Porter secured the first prize.

Sweet Peas.

The G. E. White Challenge Cup, offered for the best twenty-four bunches of Sweet Peas, was won by Mrs. A. E. Lark (gr. Mr. Langrove), Holland Hall, who also won the N.S.P.S. Medal for the best bunch in the show, with Corona; the Mundesley Sanatorium (gr. Mr. Gotts), came second. Dr. E. Deacon (gr. Mr. Baldwin), Brundall, scored for twelve bunches of Sweet Peas, followed by J. Pearson, Esq. (gr. Mr. C. E. Cooper), Boston.

W. W. Poll, Esq. (gr. Mr. J. Alborough), Hethersett, had the best six bunches of Sweet Peas, showing good flowers of Pinkie, Sunkist, Charming, Sybil Henshaw, Mrs. A. Searles and Mrs. Horace Wright; second, Dr. A. Davidson (gr. Mr. Rainbow), Thorpe.

In the colour classes, Dr. Deacon led for lavender with International, and crimson, with Charity. Mr. W. W. Poll led for scarlet or orange, with Huntsman, and the Mundesley Sanatorium scored for the best bunch of a variety introduced since 1926, with Mrs. Jack Hobbs.

Major A. L. Brown (gr. Mr. W. C. Dean), Brooke Hall; Mr. W. W. Poll; Mrs. D. H. Lane (gr. Mr. T. Parker); and Mr. G. L. Miller were other prize-winners in Sweet Pea classes.

Hardy Flowers.

The best amateur's collection of cut flowers and, or, plants, displayed on a space eighteen feet by six feet, was arranged by H. W. Empson, Esq., Cross Ways, North Walsham, who had an imposing exhibit of Astilbes, Delphiniums, Acanthus, Heucheras, Primulas, Irises, Paeonies and Campanulas.

The Silver Challenge Cup for two dozen bunches of hardy flowers was won by the Norwich Corporation (gr. Mr. Starland), with a bright collection that included Delphiniums, Potentillas, Gaillardias. Erigerons, etc.; second, Mr. E. H. Bond. J. M. Taylor, Esq. (gr. Mr. H. Balls), Oulton Broad, led for a dozen bunches of hardy flowers, and showed fine bunches of Achillea, Erigerons, Galega and a Salvia S. felix; the competition was good in this and many other classes for hardy flowers.

An interesting class was the one for six kinds of hardy flowering shrubs, J. C. Christie winning with Olearia macrodonta, Carpentaria californica, Philadelphus purpureo-maculatus, Buddleia Colvillei and Magnolia parviflora in good condition; second, the Norwich Corporation, who included Solanum crispum and Escallonia langleyensis in their set.

Delphiniums made a brave show, and Mr. G. L. Lang led for six varieties with Blue Bird, Rev. Lascelles, Nellie, Dusky Monarch, etc., and was awarded the Veitch Memorial Medal for his exhibit; second, Mr. A. Davidson, Thorpe.

Sweet Williams were uncommonly well shown by Mr. G. L. Lang, and others, while J. A. Christie, Esq., led for three vases of Lilies with L. Hansonii, L. Martagon and L. Henryi, and was also first for one vase of Lilies, with L. Henryi.

Floral Designs.

Mrs. Sandys Winch, Brundall, had the best bowl of Sweet Peas and also the best vase of flowers, winning in the latter class with Scabious. The same lady led in the class for a table decoration of Roses, showing Irish Elegance; Miss H. Cross, second, and Mrs. Empson, third. Mrs. E. L. Miller had the best basket of Sweet Peas.

Mrs. Sandys Winch was also the chief prize-winner in the classes for a basket or bowl of Roses and for a vase of Roses. Mrs. Sandys Winch was again successful in the class for a table decoration of any other flowers than Roses, using white, mauve and pink Sweet Peas; second, Mrs. Empson, with a miniature rock garden design.

Fruits and Vegetables.

Major A. Le Bruce had his own way in the leading classes for fruits, winning for six dishes with Cardinal Nectarines, Alexander Peaches, Buckland Sweetwater and Black Hamburgh Grapes, Cherries, and Brown Turkey Figs; for black Grapes, for white Grapes, and for a single bunch of Grapes.

Mr. W. C. Crawshay had the best green-fleshed Melon; Major A. Le Bruce the best Peaches — Alexander; and the Mundesley Sanatorium the best set of four dishes of Strawberries, showing excellent fruits of Sir Joseph Paxton, Royal Sovereign, Givon's Late Prolific and Bedfordshire Champion. J. A. Christie, Esq. (gr. Mr. High), Framlingham Manor, had the best dish of Figs.

The best collection of eight kinds of vegetables was shown by the Mundesley Sanatorium with good examples of Potatos, Onions, Cauliflowers, dwarf Beans, Peas, Tomatos, Carrots and Cucumbers; second, G. L. Lang, Esq. (gr. Mr. F. Sheldrake), Great Plumstead Hall; third, Major A. Le Bruce (gr. Mr. Dean), Brooke Hall.

Trade Displays.

Non-competitive exhibits were numerous and good. Messrs. Dobbie and Co. exhibited a splendid group of well-grown Sweet Peas in popular varieties, and it received well-deserved commendation. Messrs. Daniels Bros. contributed groups of hardy flowers, of Hydrangeas and of Vegetables. Messrs. A. Reeves and Co., Oulton, had a good display of Roses, and secured three Medals—local, R.H.S. and N.R.S. Messrs. H. Morse and Son and Messrs. Allen also contributed excellent groups of Roses. Messrs. Lowe and Gibson showed Delphiniums, and Messrs. R. H. Bath exhibited a big group of Delphiniums, Paeonies, etc. Messrs. Isaac House and Son contributed Scabious, and Messrs. Hewitt sent Delphiniums. Messrs. Stark and Son had a very fine exhibit of Poppies of the Coonara, Ryburgh and other strains. Messrs. John Peed and Son exhibited a large and bright group of Hydrangeas, well-grown Codiaeums, Dracaenas, Caladiums and Gloxinias.

Royal Horticultural Society's Awards.

The deputation from the Royal Horticultural Society made the following awards :—

Gold Medals.—To Messrs. A. J. and C. Allen, for Roses; and to Messrs. Dobbie and Co., for Sweet Peas.

Silver-Gilt Flora Medals.—To Messrs. R. H. Bath, Ltd., for Delphiniums and other herbaceous plants; Messrs. Daniels Brothers, for a mixed group of Gladioli, Roses, and Sweet Peas; and to Messrs. A. Reeves and Co., for Roses.

Silver-gilt Banksian Medals.—To Messrs. Hewitt, for Delphiniums; and to Messrs. J. Peed and Son, for stove and greenhouse plants.

Silver Flora Medals.—To the Hon. Arnold Henderson, Writtle Park, Chelmsford (gr. Mr. E. H. Starling), for Sweet Peas; and to Messrs. Stark and Son, Fakenham, Norfolk, for Poppies and other hardy flowers.

Silver Banksian Medals.—To J. A. Christie, Esq., M.P. (gr. Mr. Sam High), The Manor House, Framlingham Pigot, for hardy shrubs; Baroness Cederstrom, Hoveringland Hall (gr. Mr. F. Tweed), for annuals and biennials; Samuel Wallrock, Esq., (gr. Mr. W. H. Holloway), The Manor House, Stanmore for Sweet Peas; Mr. G. W. Miller, for a mixed group of herbaceous plants and Roses; Messrs. Isaac House and Son, for Scabious and other herbaceous plants; and to Messrs. Lowe and Gibson, Ltd., for Delphiniums and border Carnations.

Silver Veitch Memorial Medal and £5.—To G. L. Lang, Esq. (gr. Mr. F. Sheldrake), Great Plumstead Hall, for Delphiniums.

Bronze Veitch Memorial Medal and £2 10s. 0d. —To Gordon Winter, Esq., Wramplingham, for seedling Pinks.

ROYAL HORTICULTURAL.

July 16.—There was quite an interesting variety of events in association with this fortnightly meeting of the R.H.S. in the new Horticultural Hall, Westminster, on this date. In addition to the customary show of flowers in season there was the Rose competition for the Clay Cup, a culinary Pea competition, the National Farmers' Union Cherry Show, and the annual show of the London and South of England Viola and Pansy Society. Owing to pressure on our space, the reports of the two last-named shows are reserved for our next issue. Orchids were fewer than of late, and the Committee recommended only one Award of Merit to a novelty. Roses and Delphiniums were the chief floral features and these, as well as general border flowers were admirably shown. The Floral Committee recommended five Awards of Merit to novelties, and selected four Delphiniums and an Eschscholzia for Trial at Wisley. Although there was no novelty of moment before the Fruit and Vegetable Committee, there were several exceedingly interesting exhibits in the hall.

Orchid Committee.

Present: Sir Jeremiah Colman (in the chair), Mr. Frederick J. Hanbury, Mr. Gurney Wilson (Hon. Secretary), Mr. E. R. Ashton, Mr. John Cowan, Mr. T. Armstrong, Mr. J. E, Shill, Mr. Fred K. Sander, and Mr. Arthur Dye.

Award of Merit.

Odontonia Vesta.—A hybrid of uncommon marking, derived from Odontonia Dora × Miltonia William Pitt. The sepals are heavily marked with purple and a few dull chocolate spots and margined with white. The frontal portion has heavy chocolate markings on a white ground. Shown by Messrs. Charlesworth and Co.

Botanical Certificate.

Cymbidium atropurpureum.—A well-grown plant bearing a long, drooping spike of twenty-five flowers was shown. The flowers were of medium size with deep, shining, chocolate sepals, and a pale yellow lip spotted with chocolate. Shown by Messrs. Sander.

Cultural Commendation.

Vanda Batemannii.—An exceptionally well-grown specimen was shown by Messrs. Sander.

Groups.

There were only two small collections of Orchids in the hall. Messrs. Sander gave the central place to their specimen of Vanda Batemanni, and also placed Cymbidium atropurpureum, Phalaenopsis Rimstadianum, Laelio-Cattleya Isabel Sander, Coelogyne Mooreana and Lycaste leucantha in prominent positions.

The chief plants staged by Messrs. Charlesworth and Co. were Laelio-Cattleya Colmaniana, Sophro-Laelio-Cattleya Adonis, Brasso-Cattleya Irene and Rodriguezia secunda.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. D. B. Crane, Mr. D. Ingamells, Mr. Charles E. Pearson, Mr. George Churcher, Mr. W. B. Gingell, Mr. M. C. Allwood, Mr. A. E. Vasey, Mr. James B. Riding, Mr. Courtney Page, Mr. E. R. Janes, Mr. William Howe, and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair), Sir William Lawrence, Bt., Mr. A. Williams, Mr. L. R. Russell, Mr. Mark Fenwick, Lady Beatrix Stanley, Mr. R. C. Notcutt, Mr. Amos Perry, Mr. A. Bedford, Mr. E. A. Bowles, Mr. T. Hay, Mr. T. W. Taylor, the Hon. Henry D. McLaren the Marquess of Hartington, Mr. W. Irving, and Mr. N. K. Gould, Secretary.

Awards of Merit.

Anthemis tinctoria, Perry's var.—This is a very desirable and distinctly improved variety of the well-known Yellow Camomile. Shown by Mr. Amos Perry.

Carnation Beauty of Cambridge.—A very fine and fragrant, deep primrose-yellow border variety. Shown by Messrs. R. H. Bath, Ltd.

Gentiana hexaphylla.—A pretty, dwarf, blue Gentian from north-west Yunnan. It bears relatively large, solitary, medium-blue flowers, which have primrose markings, on stiff, purplish stems, clothed with whorls of short, narrowly-lanceolate leaves with rounded apices. Shown by Andrew Harley, Esq. (gr. Mr. T. Doig), Devon Hall, Dollar, Perth.

Philadelphus insignis.—An exceedingly good single-flowered Philadelphus. It is of vigorous habit, very floriferous, and the clean white flowers are deliciously fragrant. Shown by Charles T. Musgrave, Esq., Hascombe Place, Godalming.

Verbena sp., C.E. 354.—The award to this pretty herbaceous plant from Chili is subject to it being named correctly. It is about two feet in height. The stems are square and bear opposite, ovate-lanceolate, serrate leaves of harsh texture. The small, deep lavender flowers are borne in dense heads. Shown by Mr. Clarence Elliott.

For Trial at Wisley.

Delphinium Gladys Thrale.—A good spike of rounded, blue and purple flowers. This and a similar seedling, but with a whiter eye, was shown by W. H. Grant, Esq., Croydon.

D. Hewitt's Superb.—A handsome, compact spike of lavender and Cambridge-blue flowers. Shown by Messrs. Hewitt, Ltd.

D. Eileen May Robinson —A loose spike of long-stemmed lavender and sky-blue flowers. Shown by Mr. Herbert Robinson.

Eschscholzia Eastern Queen.—A very showy variety. The outsides of the large flowers are shining cardinal, and the interiors are pale buff. Shown by D. H. Gardiner, Esq., Thornington, Colchester.

The Clay Cup for Fragrant Roses.

There were fourteen good H.T. Roses set up in a competition for the Clay Cup, which was awarded to the variety Aroma, shown by Messrs. B. R. Cant and Sons. It is a deliciously fragrant, deep rose-pink to light crimson flower of globular shape. Messrs. Dobbie and Co. showed a very fragrant, crimson Rose but, unfortunately, it was not accompanied by a plant as required by the conditions of the competition. Barbara Richards, was the best-formed Rose, and it also possessed agreeable fragrance.

Groups.

Roses of exceedingly good quality were shown extensively, and although the H.T. varieties predominated, there were good vases and stands of the climbing and rambling Roses. The chief exhibitors were Messrs. S. McGredy and Son, Mr. H. J. Pemberton, Messrs. Frank Cant and Co., Messrs. B. R. Cant and Son, Messrs. Alex. Dickson and Sons, Messrs. Ben. Cant and Co., Messrs. Wilson and Agar, Messrs. W. E. Archer and Daughter, Mr. E. B. Le Grice and Messrs. Bunyard and Co., who had an exceedingly interesting collection of old-fashioned Roses.

Carnations were staged in the accustomed good quality by Messrs. C. Engelmann, Ltd., and Messrs. Allwood Bros. The latter also showed many pretty varieties of Dianthus Allwoodii, and a bed of Dianthus "Sweet Wivelsfield."

Delphiniums of superb quality filled almost the whole of the wall space, and there was a splendid circular group arranged by Messrs. Blackmore and Langdon in the middle of the hall. Their chief varieties were Sir Douglas Haig, Cambria, The Shah, Lord Derby and F. W. Smith.

In a delightful collection of magnificent Delphinium spikes, Messrs. H. J. Jones included such splendid varieties of pale heliotrope and sky-blue colouring as Mrs. Stilwell, Ryecroft, Millicent Blackburn, Mrs. W. R. Dykes and Miss Lettie Fairfax, and also W. Heaton, of pure sky-blue colour. The dark blue varieties were prominent in the good collection of Mr. T. Bones, and these included Hunsdon Dell, Clarissa, Dina and Orion. Mr. T. Carlile had several good dark heliotrope coloured sorts, of which George Cochrane, Lord Derby and Coquette are a selection. The dark blue varieties shown by Messrs. Hewitt, Ltd., included The Bishop, King Bladud, Violet Queen and Rose Marie.

A large and interesting collection of seasonable border flowers was arranged by Messrs. B. Ladhams, Ltd., who also showed garden Pinks and a model, formal water garden replete with Nymphaeas and other aquatics. Messrs. Patricks had a good group of hardy shrubs.

On the staging, Messrs. Barr and Sons grouped many desirable border flowers, such as Delphiniums, Liliums in variety, and herbaceous Phloxes. Mr. George E. P. Wood, Messrs. Tuckers, Ltd., Messrs. Maxwell and Beale, the Misses Hopkins, Messrs. G. and A. Clark, Mr. A. Miles and the Little Munden Nurseries had collections of seasonable flowers, and Mr. Amos Perry set up a large group of his new variety of Anthemis tinctoria.

A graceful group of Eremurus Bungei and Eremurus Shelford was arranged by Messrs. W. Artindale and Son. Mr. James Douglas staged a fine collection of border Carnations, which included Red Hussar, King of Scarlets and Flambeau.

The end of the hall was filled by Messrs. Dobbie and Co. with a magnificent collection of Sweet Peas. Their many varieties included Gleneagles, Mrs. A. Searles, Magnet, Sunkist, Youth and Idyl. Close by, they had a pretty group of Lilium regale, and Messrs. Waterer, Sons and Crisp showed Japanese Irises and Astilbes. Messrs. M. Prichard and Sons, had a very complete collection of Astilbes with Japanese Irises.

An exceptionally complete collection of foliage Begonias was staged by Messrs. L. R. Russell, Ltd. The varieties of Begonia Rex were most prominent, and these included Marechal Foch, La Marquise, Charles Louriden, Perle de Mortefontaine and Vesuve, while there were many others of value.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. C. G. A. Nix, Mr. H. S. Rivers, Mr. H. V. Taylor, Mr. J. Wilson, Mr. P. A. Tuckett, Mr. Edwin Beckett, Mr. George F. Tinley and Mr. W. F. Giles, and Mr. A. N. Rawes, Secretary.

Culinary Pea Competition.

On the occasion of this meeting of the Society, a competition for culinary Peas was held, but it was not a success. There were only two exhibitors in Class 1, for six dishes, distinct, Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex, was placed first, with grand dishes of Duke of Albany, V.C., Admiral Beatty, Quite Content, Early Giant and Daffodil. H. W. Henderson, Esq. (gr. Mr. F. L. Pike), Woodhay, Newbury, Berkshire, had good pods of Bedfordshire Champion, Gradus, Pioneer, Admiral Beatty, Roupell Masterpiece and Alderman, in his second prize exhibit.

In Class 2, for three dishes, R. Chetwynd-

Stapylton (gr. Mr. W. Meager), Headlands, Berkhamsted, was the only exhibitor, and he was awarded the first prize, his varieties being Gradus, Duke of Albany and Quite Content.

Groups.

Messrs. G. Bunyard and Co., Ltd., staged a magnificent representative collection of Cherries, embracing quite sixty varieties, including many Continental sorts.

A collection of choice fruits, embracing Tomatos and Cucumbers, Gooseberries, Melons, Grapes and Raspberries, was staged by the Swanley Horticultural College; while British Glasshouse Produce Marketing Association, Ltd., had a grand exhibit of fruits, including Peaches, Grapes, Tomatos and Cucumbers, beautifully graded and packed as for market.

The East Malling Research Station was responsible for a very educational exhibit, arranged in four sections. The first was of various Raspberries, punnets of fruits and vases of typical growths of each variety being displayed. The next was an exhibit demonstrating the classification of Black Currants, with information on the characters by which the varieties may be identified, and fruiting growths and punnets of fruits of the varieties Goliath, French, Boskoop Giant and Baldwin. There were fruiting growths and punnets of fruits of the chief commercial varieties of Red Currants, together with information regarding the classification of these fruits; while the fourth section was a demonstration of bacterial canker or die-back of Cherries.

Grand fruiting sprays of Black Currant Seabrook's Black and Raspberry Lloyd George, were shown by Messrs. W. Seabrook and Sons.

Messrs. Sutton and Sons and Messrs. James Carter and Co. staged grand collections of culinary Peas, in great variety and splendid condition; both were highly educational.

GENERAL BULB GROWERS' OF HAARLEM (HOLLAND).

The following awards were made by the Narcissus Committee of the above Society during the spring meetings of 1929.

First Class Certificates.

Narcissus Daphne (*double Poeticus*).—Pure white. Raised by Mr. F. Culpin.

Narcissus Irene Copeland (*double*).—White and soft yellow. Raised by Mr. W. F. M. Copeland.

Tulip Gadelan (*Parrot*).—Purple and violet.

Awards of Merit (Market Flowers).

Narcissus Henna (*Incomparabilis*).—Deep lemon-yellow perianth, with a clear orange, tubular cup. Raised by Mrs. R. O. Backhouse.

Narcissus Red Rim (*Poeticus*).—Round, white perianth; the flattened, greenish-yellow cup has a wide, orange-red edge. Raised by the Rev. G. H. Engleheart.

Narcissus Wide Wing (*Poeticus*).—White perianth and yellow cup edged with red. Raised by the Rev. G. H. Engleheart.

Awards of Merit (Show Flowers.)

Narcissus American Beauty (*yellow Trumpet*).—Regular, overlapping, clear yellow perianth segments, with a frilled trumpet of somewhat darker shade. Raised by Messrs. J. Gerritsen and Sons, at Voorschoten.

Narcissus Boston.—Sulphur-white perianth, with a yellow, orange-edged cup, two to four flowers being borne on one stem. Raised by Messrs. A. Frylink and Sons, at Sassenheim.

Narcissus Commander Byrd (*bicolor Trumpet*).—Sulphur-white perianth with a large, heavily frilled, lemon-yellow trumpet. Raised by Messrs. van Zonneveld Bros. and Philippo, at Sassenheim.

Narcissus Cymric Queen (*Incomparabilis*).—A large flower, with overlapping, milky-white perianth segments; cup clear yellow, with a broad, orange margin. Raised by Messrs. de Graaff.

Narcissus Dactyl (*Poeticus*).—White, flat perianth, and a yellow, red-edged cup. Raised by the Rev. G. H. Engleheart.

Narcissus Estelle (*Incomparabilis*).—Lemon-yellow perianth, with a heavily frilled, deep orange cup. Raised by Mrs. R. O. Backhouse.

Narcissus Excelsior (*Poetaz*).—Milky-white perianth, with an orange-yellow cup.

Narcissus Feu de Joie (*double Incomparabilis*).—Sulphur-yellow and deep orange. Raised by Mr. W. F. M. Copeland.

Narcissus Friar (*Leedsii*).—Sulphur-white perianth, and a small, frilled, yellow cup. Raised by Mrs. R. O. Backhouse.

Narcissus Glory of Oegstgeest (*yellow Trumpet*).—A flower of medium size, with a broad, yellow, heavily-frilled trumpet. Raised by Messrs. G. Lubbe and Son, at Oegstgeest.

Narcissus Helen Wills (*Incomparabilis*).—Creamy-white perianth, and a trumpet-shaped, orange cup. Raised by Messrs. E. H. Krelage and Son, at Haarlem.

Narcissus Innes (*Incomparabilis*).—Sulphur-yellow, undulated perianth and broad, frilled cup.

Narcissus Irmelin (*Poetaz*).—Sulphur-white perianth, and a clear orange cup.

Narcissus J. K. Ramsbottom (*Barrii*).—Clear white perianth, and deep yellow, orange-edged cup. Raised by Mr. P. D. Williams.

Narcissus Marvellous (*bicolor Trumpet*).—A very large flower, with sulphur-white perianth segments and a large, golden-yellow trumpet. Raised by Messrs. C. Alkemade Azn.

Narcissus Mongolia (*yellow Trumpet*).—Pure yellow, with deep yellow, orange-shaded trumpet. Raised by Messrs. C. G. van Tubergen, at Haarlem.

Narcissus Mr. Nijgh (*Barrii*).—Clear white perianth, and a frilled, deep orange cup with a yellow centre. Raised by Mrs. R. O. Backhouse.

Narcissus Naomi (*Barrii*).—Flat, sulphur-yellow perianth and a butter-yellow cup with deep orange edge. Raised by Mrs. R. O. Backhouse.

Narcissus Orange Circlet (*Incomparabilis*).—Perianth lemon-yellow; cup butter-yellow, with a distinct, orange-red edge. Raised by Messrs. Barr and Sons, at London.

Narcissus Peerless (*Poetaz*).—Soft apricot, with deep orange cup. Raised by Mrs. R. O. Backhouse.

Narcissus Polwijn (*Poeticus*).—Clear white with flat, yellow cup edged with red. Raised by Mr. P. D. Williams.

Narcissus Red Knight (*Incomparabilis*).—Perianth creamy-white, and a large, clear orange cup. Raised by Mrs. R. O. Backhouse.

Narcissus Roman Star (*Barrii*).—Creamy-white perianth, and broad, deep-orange, strongly frilled, flattened cup. Raised by Messrs. de Graaff Bros.

Narcissus Royalty (*yellow Trumpet*).—Primrose-yellow, with stout, wide-opened, lemon-yellow trumpet. Raised by Messrs. C. G. van Tubergen, at Haarlem.

Narcissus Rust-hof (*Barrii*).—Round, overlapping, pure-white perianth segments and flat, yellow, orange-edged cup.

Narcissus Searchlight (*yellow Trumpet*).—Golden-yellow perianth and a wide-opened trumpet, with a slightly frilled border.

Narcissus Statendum (*yellow Trumpet*).—Clear golden-yellow. Raised by Messrs. de Graaff Bros.

Narcissus Sylphide (*bicolor Trumpet*).—Snow-white perianth, and soft, canary-yellow, wide opened trumpet.

Narcissus Twinkle (*Barrii*).—A small flower, apricot, with a deep orange cup and apricot-coloured stamina. Raised by Mrs. R. O. Backhouse.

Narcissus Vixen (*Incomparabilis*).—Sulphur-white perianth, and a wide-opened, clear orange cup. Raised by Mrs. R. O. Backhouse.

Narcissus White Giant (*Poetaz*).—Creamy-white perianth and broad, orange cup.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, July 8, Mr. Charles H. Curtis presiding. Eight new members were elected. Two members withdrew the sum of £52 10s. 11d. from their deposit accounts, and the sum of £104 14s. 11d. was passed for payment to the nominees of two deceased members. The sick pay for the month on the private side came to £89 19s. 0d., and in the State Section to £72 0s. 6d., while Maternity Benefits totalled £11 10s. 0d. The sum of £29 10s. 4d. was granted to eight members on the State Section for dental and optical treatment, and five other cases were considered.

BRITISH CARNATION.

The following new Carnations have been registered with the British Carnation Society:—

W. H. Wallace.—Seedling. Colour deep salmon-pink; raised by the late Mr. W. H. Wallace and registered by Mr. W. E. Wallace, Eaton Bray, Dunstable.

Catthorpe Cherry Red.—Sport from Baroness de Brienen; colour bright cherry-red; large, fragrant flowers; habit of growth and stem as parent. Raised by Mr. W. G. Donce, Catthorpe Manor Gardens, Rugby.

At a Council meeting held on June 25, the Chairman presented the late Secretary, Mr. Percy F. Bunyard, with the Society's Gold Medal as a token of appreciation for valuable services to the Society.

Mr. J. D. Simpson, Ashton-on-Ribble, kindly offered to present two Gold Medals to the gardeners who show the best vases of five blooms at the Society's 1930 shows, and Mr. R. F. Felton offered two Silver-gilt Medals as second prizes in the same classes.

MORAY FIELD CLUB.

The Moray Field Club, which on this occasion was joined by the Elgin and Moray Literary and Scientific Association, held its June excursion to Aberlour Orphanage, the leading orphanage in Scotland belonging to the Scottish Episcopal Church. After a minute inspection of the buildings, with its happy 450 girls and boys, under the guidance of the warden, the Rev. Clarence A. E. Wolfe, B.A., the party was taken round the gardens by Mr. White, M.A., who is well-known in Scottish horticultural circles.

The Tomato houses were visited first and some fine work was seen here. In a space 35 feet by 10 feet, a little over half of which is occupied by Tomatos, over 600 lbs. of Tomatos were grown last year, and the prospects this year are even better. The best variety is known as No. 8, a product of two well-known strains, a peculiarity of which is that the joints between the clusters are shorter and so take up less space. The Begonia house, however, was the chief source of delight to the visitors. Here they found that wonderful scented variety which Mr. White has the great honour of raising, the only other known person working on the culture of scented varieties being Mons. Le Maine, Nancy, France. But the latter's productions are diminutive compared with the magnificent double, orange-yellow blooms at Aberlour. Mr. White was the first to produce a double, scented Begonia. It is a cross between a small-flowered, scented Begonia, a native of Bolivia, and a single pink Begonia, also with rather small blooms. The scent is detected only in the morning and early forenoon, when it fades away to return again in the evening. An outstanding feature in this house was a superb double pink Begonia measuring over seven inches in diameter and perfect in form. Mr. White declared that in all his experience it was the finest he had ever grown. Unfortunately the weather was far from propitious, and the visitors had to forego a botanical ramble to the famous Falls of Ruthrie. This gave them, however, all the more time to spend with Mr. White, and a most enjoyable day was spent.

Obituary.

Andrew Russell Carlisle.—It is with deep regret that I record the death of Mr. A. R. Carlisle, who had been in failing health for some time past. Of his earlier career I have no record, but for the past twenty years or more I have known him as a very keen gardener, especially in the cultivation of hardy fruits. The last position he held was that of gardener at Henlow Grange, Bedfordshire, and it was from these gardens that he won a large number of prizes at the R.H.S. shows held at Vincent Square. He was also a successful exhibitor at Belfast, where he was awarded a Silver Cup and £10 for a large collection of Apples. Mr. Carlisle was on several occasions awarded first prizes in the county classes at Vincent Square, both for Apples and Pears, and was very successful in single dish classes, and one cannot help remembering a wonderful dish of Peasgood's Nonsuch that gained him the first prize in the year 1911. One fruit alone weighed 1 lb. 11½ oz. Although he retired in April, 1920, his interest in the cultivation of hardy fruits continued, for having purchased a house in the village of Henlow, with a good portion of land attached, he at once planted up his favourite varieties of Apples and Pears. During the past three or four years he was a most successful exhibitor in open classes, and secured the much coveted Hogg Medal. He was laid to rest in sight of his old home, and a large company assembled in the churchyard to show their respect for him. He was sixty-six years of age, and leaves a widow, one son and a daughter to mourn his loss. *T. P.*

Mrs. H. Dixon.—The deepest sympathy of Orchid-loving readers will be extended to Mr. Harry Dixon, of Spencer Nursery, Wandsworth Common, who has sustained a heavy bereavement in the death of his wife, who passed away on Sunday afternoon last, following a severe operation.

Lt.-Col. George Henderson, M.D.—The death is announced from Inverness of George Henderson, who conferred many benefits, scientific and administrative, on India. Born at Cullen, in November, 1836, he had reached a venerable age. A graduate of Aberdeen University, where he had a most distinguished career in medicine, Dr. Henderson joined the old Indian "John Company" two or three months before that Company's administration was taken over by the British Government, his first post being at Sialkot, Punjab. Soon after he became Professor of Surgery in Lahore University, of which he remained a warm friend all his life. His administrative qualities were tested when he became Superintendent of the Central Jail, Lahore. He revolutionised the system of prison treatment then in vogue with beneficial results to all concerned. In 1870, Dr. Henderson was selected as medical officer, with special authority to collect scientific information concerning the flora and fauna, to Sir Douglas Forsyth's mission to Yarkhand. The route lay through Kashmir, Ladak and Sanju, ultimately reaching an altitude of 19,600 feet. During the expedition, Dr. Henderson discovered several new species of birds, including Falco Hendersoni and Podoces Hendersoni, and many rare plants. Along with Mr. Allan O. Hume, Dr. Henderson published a narrative of the expedition, entitled *Lahore to Yarkhand*. He introduced into the work some remarkably fine specimens in those days of his own photographs, and coloured drawings of birds and plants. Returning home on a six-months' furlough, Dr. Henderson became a member of the Royal Geographical Society and also of the Linnean Society. His furlough was abruptly ended when the Government of India requested him to take up the post of Director of the Royal Botanic Gardens and Professor of Botany at Calcutta University. At this time Ipecacuanha was dying out in South America, and the Indian Government were anxious to try and grow it on the Cinchona (Quinine) plantations, near Darjeeling. Here, again, Dr. Henderson rose to the occasion. He imported two hundred plants, and in a year these multiplied twenty-thousand fold. Once more he assumed charge of the jail at Lahore, where he taught the prisoners the cultivation of vines, etc., and had the unique record of never having a case of cholera—so common then. From there, he was transferred to Rawal Pindi. Wherever he was placed, Dr. Henderson became honorary superintendent of the public gardens. He was responsible for the designing of a great part of the gardens at Lahore, while the whole of the public gardens at Amritsar were laid out by him. He found Shahpur a barren waste and left it a garden. Here his greatest service was rendered in the discovery as to which particular species of Eucalyptus tree would grow in India. This experiment he carried out with remarkable success, and years afterwards he was able to drive for thirty miles through a shaded avenue planted by himself, and where formerly there had been a desert.

ANSWERS TO CORRESPONDENTS.

Aster Stem-rot.—*W. H. M.* The disease in the Asters due to the fungus Phytophthora cryptogea. Destroy all badly infected plants and water the remainder with Cheshunt compound. Bear in mind that soil will be infected and that susceptible plants should not be grown in it before it has been sterilised with either two per cent. formalin for outside borders, or steam for potting soil.

Calanthes Unhealthy.—*A. S.* The Calanthes are suffering from the effects of an atmosphere overcharged with water vapour. The black spots on the foliage are due to a bacterium which becomes active when the relative humidity figure in the house is high. Restrict the amount of water used in watering and damping down, so that the air in the house is drier, which will allow the plants to recover from the setback.

Cypress Shoots Unhealthy.—*H. I. W.* The Cypress shoots are free from attack by pathogenic organisms. The trouble is probably due to dry conditions at the roots, which would cause many of the shoots to die back.

Factors Governing the Development and Flowering of Vines.—*A. L. B.* Various causes conspire to bring about the development of a healthy and fruitful vine. During the whole season of active growth the atmosphere of the vinery should be kept moderately moist in order to encourage strong and healthy growth. This is secured by syringing the vines until growth has commenced, damping the walls and paths at least twice daily on bright days, and by maintaining a steady temperature commencing with 48° when starting the vines into growth, and gradually rising to 65° at night, always allowing a rise of 5° to 15° during the day, according to the outside atmosphere. A well-drained border, thin training, by the removal of all superfluous shoots and laterals, moderate cropping, with careful watering, feeding and ventilation, are all necessary details to bring about healthy and fruitful vines. A few causes which conspire to bring about failure are that the border is often at fault, the soil being sour or exhausted; too many spurs left on the vines, with consequent overcrowding of the foliage; laterals and sub-laterals allowed to run wild; overcropping, and the removal of too much growth at one time, all of which factors prevent the proper development of the fruit buds. Another frequent cause of failure by amateurs is crowding the vinery with tender plants through the winter months when the vine ought to be at rest.

Grapes Shanking.—*A. H.* The Grapes show signs of "shanking," which is due to an insufficient amount of water during the period of swelling. The spots arise from draughty conditions, so that careful attention must be paid to watering and ventilating.

Iris Sibirica "Perry's Blue" Diseased.—*M. T.* The plant of Iris Sibirica is affected with a fungus disease similar to that to which the Bearded Irises are subject. At least two species of fungi are present in the roots and work on this comparatively new disease is still continuing, so that it cannot be stated which fungus is the causative agent. The affected clumps should be lifted and destroyed and the soil surrounding them taken away and buried deeply in some other part of the garden.

Lilium candidum Diseased.—*F. T.* The plants of Lilium candidum are attacked by the fungus, Botrytis cinerea. Plants growing in exposed positions are very susceptible to attack, the fungus making headway when the plants receive a check in growth such as may be induced by cold draughts and late frosts. The attacked bulbs should be lifted and burnt. Lift all the bulbs after the growing period, dust them with green sulphur, and replant in a sheltered position and away from the influence of northerly and north-easterly positions.

Malva Flowers Lacking Colour.—*C. W.* The cause of the lack of colour in Malva and other herbaceous plants may be due to the absence of ferric salts in the soil. The trouble may be remedied by the application of iron sulphate to the soil at the rate of two to three ounces to the square yard. There are white varieties of Dictamnus and Thalictrum, and the presence of white flowers on these plants may be normal.

Names of Plants.—*M. P. S.* 1, Sempervivum ciliosum; 2, Crucianella stylosa; 3, Campanula cochlearifolia var. alba; 4, Campanula cochlearifolia; 5, Campanula Portenschlagiana; 6, Sedum spurium; 7, Sedum Ellacombianum; 8, Veronica Guthriana; 9, a form of Dianthus caesius; 10, Dianthus hyssopifolius.—*W. Y. Z.* 1, Hippophae rhamnoides; 2, Euphorbia Wulfenii; 3, Allium Moly; 4, Phlomis grandiflora; 5, Phlomis fruticosa; 6, Poterium obtusum.—*S. S.* 1, Lonicera Caprifolium; 2, specimen too poor to identify; 3, Polypodium alpestre.—*G.* 1, Salvia candidissima; 2, Heuchera sanguinea; 3, Genista sagittalis; 4, Rodgersia pinnata; 5, Stachys grandiflora; 6, Spiraea Aruncus; 7, Dorycnium hirsutum; 8, Philadelphus Lemoinei var. erectus; 9, Stevia serrata; 10, Philadelphus coronarius; 11, Jasminum primulinum; 12, Ligustrum vulgare; 13, Clematis Viticella; and 14, Dianella sp., insufficient material.

Pansy Plants Diseased.—*G. G. H.* From the appearance of the Pansy plant, it is suggested that it is suffering from drought as there is no sign of attack by any parasitic fungal organism. The maggot is the larva of a midge, Sciara species, which feeds on decaying organic matter, and is not connected with the trouble.

Preparing Cheshunt Compound.—*A. W. B.* Cheshunt compound cannot be secured ready prepared, but may be made as follows:—Mix two parts, by weight, of powdered copper sulphate with eleven parts of finely crushed, fresh ammonium carbonate, and store it in a tightly-corked glass or stone jar for twenty-four hours. Dissolve one ounce of this dry mixture in a little hot water, and add it to two gallons of cold water. It should be used immediately after being prepared (only sufficient for immediate requirements should be mixed) and should not be put into iron, tin or zinc containers, as it corrodes them and loses its strength. This fungicide originated at the Cheshunt Experimental Station, hence its name.

Rose Leaves Attacked by Slug-worm.—*A. H.* The Rose leaf has been attacked by the Rose Slug-worm, which is the larva of the sawfly, Eriocampa rosae. To prevent further damage in August by the second brood larvae, spray the lower surface of the foliage with one ounce of arsenate of lead paste to one gallon of water.

Communications Received.—H. F.—R. W.—F. P.—R. O. B.—C. V. C.—J. P. O. D.—F. C.—W. P. C.—W. P. W.—R. E. F.—W. D.

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Gardeners' Chronicle
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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62·9°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 24, 10 a.m. (Greenwich time). Bar. 30·1. Temp. 70°. Weather, overcast.

The Pruning of Apples.

THE experiments and observations on the pruning of Apples which have been carried out at East Malling for many years, have borne good fruit; an empirical art is rapidly becoming an exact science. It used to be the custom on the part of experts to lay down fixed and sometimes contradictory rules; now the first recommendation by the modern expert is that method of pruning must be adjusted to variety of Apple and kind of stock on which it is grafted. Thus there are certain varieties, of which Worcester Pearmain is an example, which possess a tip-bearing habit, that is, they produce many of their fruits not on spurs, but along the tips of the branches, and this habit is specially marked in the second or adolescent stage of the growth of the tree. To practice "leader tipping" unrestrainedly on this or similar "tip-bearing" varieties is to throw away the baby with the bath water. Yet leader tipping—the shortening of the shoots that extend the branches or form new branches—is essential for the shaping of the tree, the maintenance of its vigour and the furnishing of the branches with spurs. The advice on "leader tipping" given by Mr. N. H. Grubb in the summary of experiments at East Malling* is well worth noting and practising. In the young tree up to the fifth year, leader tipping should be drastic, that is, some two-thirds or three-quarters of each leader should be removed, but should become less and less as the tree takes shape. In the second or adolescent stage the object of pruning is different. The tree has been shaped. It must now be brought into bearing. If early bearing is the object, then leader tipping must be reduced greatly in severity, for if it be continued vigorously, although the mature tree will be more satisfactory, cropping will be delayed. How remarkably leader tipping may delay cropping is shown by the figures of experiments made at East Malling. The total crop in bushels per acre up to the ninth year was :—

	Leader tipped.	Not Tipped.
Early Victoria.. ..	173 ..	522
Grenadier	70 ..	209
Lane's Prince Albert ..	82 ..	242

Therefore, in the case of fillers, that is, trees planted for early cropping in order to provide returns pending the maturing of the permanent trees, tipping must be practised far more sparingly than in the case of the permanent trees. Yet, even in the case of fillers, leader tipping, albeit light, must be practised; for if it be neglected, the quality of the fruits will suffer. It is a well-known fact that the unpruned tree gives, in its early years, more fruit than does the pruned tree, but it is equally well-known that the fruits of the young unpruned tree are generally, if not invariably, inferior to those of the pruned tree. So in the case of the untipped young trees, particularly with Allington Pippin and Cox's Orange Pippin, the fruits produced, although numerous, are very small. The practice of tipping as applied to Apples is indeed essential to the conservation of vigour of the tree. Neglect it, and although much fruit of a small kind is produced in the early years, partial exhaustion follows, and the tree with unrestricted growth is soon surpassed in fruitfulness by that the growth of which was controlled by judicious "leader tipping." An application of this fact to old and neglected orchards would lead to great improvement in crop production. As Mr. Grubb points out, the trees of many of these old orchards are in like case with the untipped trees of new plantations. Severe pruning with a moderate "dehorning," that is, heading back of the main branches, would lead eventually to larger fruit—and often to more fruit. Nor should the pruner forget that he is at once a sculptor and a surgeon. He shapes the tree and by timely surgery he saves it from manifold diseases. Sometimes the salvation results from the removal of branches in which diseases—scab, mildew and canker—have ensconced themselves with intent to do harm in the future. The pruning knife and bonfire in winter scotch these snakes. But pruning, by making the tree easier to spray, permits of the destruction of insect pests and fungus diseases which otherwise would be protected by their inaccessibility. Yet again, by conserving the energy of the tree, pruning appears actually to enhance its powers of resistance to such diseases as scab and canker. Lastly, by letting light and air into the centre of the tree, pruning makes healthy trees which do not readily fall victims to disease. In view of the excellence of the precepts laid down by Mr. Grubb, we hope that this summary of East Malling pruning experience will be reprinted in pamphlet form for there are large numbers of amateur and professional gardeners who would like to have such a pamphlet by them for reference when the time for summer and winter pruning comes round.

Admission to Kew Gardens.—The charge for admission to the Royal Botanic Gardens, Kew, was imposed during the war, presumably for economic reasons and by way of a luxury tax. On five days of the week the public has had to pay one penny per head for admission, while on two days—students' days, Tuesdays and Fridays—the charge has been sixpence per head. On July 22, Mr. Noel Buxton, Minister of Agriculture, announced in the House of Commons that, commencing on August Bank Holiday, the charge of one penny for admission to Kew would be abolished; the charge on students' days will remain. It was stated in Parliament that the loss entailed by the abolition of the penny charge would be about £5,000 a year.

Moreton Paddox Gardens.—By kind permission of Captain and the Hon. Mrs. Garland Emmet, the above gardens were opened to the public on Sunday, July 14 from 2 p.m. to 8 p.m. It is twenty years since the mansion was built, and the gardens laid out by Major and Mrs. Emmet—parents of the present owner. The site which the gardens now occupy was formerly rough land covered by scrub and Gorse. Under the special care of Major Robert Emmet, this land was transformed into the lovely garden that it is to-day, almost every type of garden being represented in a very charming manner. How much the garden is appreciated is shown by the fact, that, although the charge for admission was only 6d., the gross takings for the afternoon was upwards of £175, which money will be divided among charitable institutions. Fortunately, although the crowd was big, it is pleasing to record that little damage was done, and the general behaviour of the visitors was excellent. This is gratifying, as it is pleasant for the mass of people living in towns, and garden-lovers, to have the opportunity of visiting these stately homes, and we hope that their periodical opening will become a permanent institution.

Roses in Street Decoration.—There are not many towns with an atmosphere sufficiently pure and free from dust to admit of Roses in their scheme of adornment, but this is apparently the case in a Berlin suburb where, greatly daring, Roses have been introduced into a small roadside plot. A long street, known as the Schönhauser Allee, leads from Old Berlin to Pankow, and just where (as "Berlin Street") it debouches on the suburb itself, certain alterations in the form of the street have left unoccupied a narrow strip, which has been turfed over and the centre portion planted in rectangular beds. Each bed, in the centre of which is a stone vase, has been planted with Roses, the kinds chosen being Rödhätte and Eblouissant. It will be interesting to see how this bold experiment will succeed, and whether the Roses will survive the inevitable dust of this particularly dry summer.

New Roses at Bagatelle.—The meeting of the International Jury at Bagatelle, Paris, was held on June 20, almost one week later than usual. This was due to climatic conditions which retarded vegetation to an ususual extent. It is pleasing to state this year, nothwithstanding the great severity of the winter, that the growths of all the Rose trees under trial 1928-29 were in good condition. Our correspondent states that he is satisfied that on no other of his many visits has he found the trees submitted for trial so satisfactory. They gave ample evidence of the preparation of the beds and the introduction of a fairly suitable compost for Roses, as the natural soil at Bagatelle is far from what the Rose requires. The trees planted in the autumn of 1928 were, as it was to be expected, not sufficiently advanced in growth to admit of critical examination; consequently, very many of those on trial were not in bloom, and were reserved for further notice. The chief attention of the Jury was centred on the 1928-29 trials and, as mentioned, good culture was in evidence on all the varieties under trial. It will be readily understood that all the fifty novelties planted for trial could not possibly be at their best on a particular day; indeed, quite a number were several days past their best condition; still, there was on most of them sufficient material to enable an opinion to be formed, and the conclusion arrived at after two days careful scrutiny was that only ten per cent. of those on trial were worth further consideration. The Gold Medal for the best French production was given to Madame Pierre S. du Pont, H.T., raised by C. Mallerin; colour deep saffron-yellow; of medium size and good form; possessing excellent habit and foliage, also very free-flowering. This variety was outstanding both in 1928, when it gained nine points out of a possible ten; and in 1929, when it received nine-and-a-half points. The First Certificate was awarded to Souvenir de Pierre Guillot; colour somewhat difficult to describe, being yellow at the base of the petals and coral pink at the edges. It received eight points on both occasions. The Gold Medal for a Rose other than French was awarded to Messrs. Leenders Deville and Co., for President Deville. This was seen at its best. It is very free-flowering, of medium size, good form, and deep rose colour; it should be a good bedding variety. The First Certificate was awarded to M. Pedro Dot for Frederico Casas, which resembles Juliet in colour, but is very thin. Other varieties noted as worthy of trial were Le Maréchal Petain, scarlet, of good form and free-flowering habit; Leni Neuss, pink on salmon ground, very attractive; Dr. Augustin Wibbett, a full flower, golden-yellow, shaded cadmium; Julie Strahl, capucine-red on a yellow ground, and very free-flowering; and Jules Gauyard, red, shaded carmine, of good growth and free-flowering.

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* "Apple Pruning: Summary of Deductions from Experiments at East Malling (Revised January, 1929)," by N. H. Grubb. *Annual Report* 1.—*General.* East Malling Research Station, 1928.

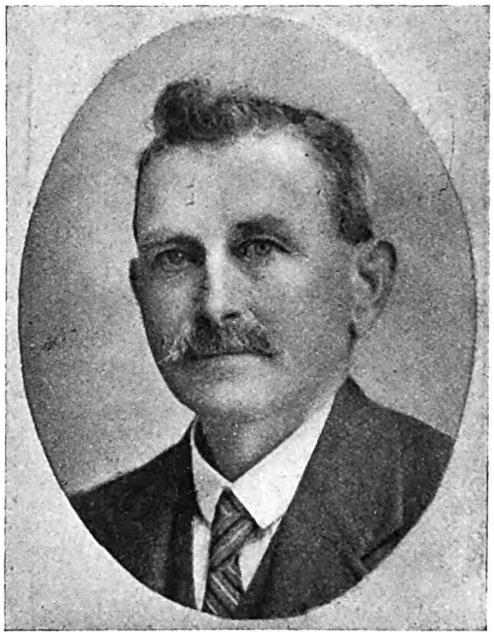
The Hardy Fruit Crops of 1929.—In accordance with our usual custom, we have invited numerous gardener-friends to report upon the amount and condition of the hardy fruit crops in their districts, and requested that the reports be returned to us without delay. We hope that outstanding reports will be returned at once.

Seed Firm's Staff entertained.—On Saturday, July 6, the employees of Messrs. Edward Webb and Sons attended the third annual garden party given by Major W. Harcourt Webb (Managing Director of the firm) and Mrs. Webb, at their residence, Spring Grove, Bewdley. The party, which numbered several hundreds, was conveyed to Bewdley in char-a-bancs and motor cars, and the grounds and gardens were thrown open to the guests. Luncheon and tea were served in a large marquee, and various competitions and games, including bowls, tennis, clock golf, cricket, football, skittles, a whist drive, tug-o'-war, fishing in the lakes, etc., kept everyone in a state of pleasurable excitement throughout the day. Music was provided by the band of the 8th Worcestershire Regiment, and in the evening there was dancing on the lawn. The weather was delightful and a most enjoyable day was spent. At the close of the proceedings, on the motion of Captain J. Clayton (Director), a vote of thanks was enthusiastically accorded to Major and Mrs. Webb for their generous hospitality.

A Cheap Shading Material.—A German contemporary, *Die Gartenwelt*, for July 12, contains directions for the shading of large expanses of glass with a wash made of ordinary clay and water. The clay is lightly dissolved in the water, and then spread over the glass roofs by means of a coarse-rosed watering can. This wash, naturally, will not withstand rain, and in many cases it is useful that it should thus be removed; but if it is required to last all the summer, a couple of handfuls of lime may be mixed with every twenty pints or so of the clayey mixture. Although this will withstand ordinary rain, it is much easier finally to wash off than lime-wash alone, as well as being considerably cheaper.

Further Acquisition of Land in the Lake District—It is with very great pleasure we learn that Mr. and Mrs. Noton Barclay have purchased the Ings and Stable Hills and generously presented the land to the National Trust. This area extends along the south-west side of Derwentwater from Strandshag Bay to Scarfclose, and will thus keep open to the public many fine views of a lovely lake. It is expected that the field known as Strandshag will soon be purchased, as most of the purchase money has been donated. This will link up the foreshore of the newly-acquired property with that already secured northward, so that eventually there will be a public lakeside walk of nearly two miles.

Mr. John T. McCormack.—At the age of fifteen, Mr. J. T. McCormack commenced his horticultural career under the very excellent training of Mr. Charles Kershaw, at Syke Nurseries, Brighouse, Yorkshire. He received invaluable tuition from the founder of the firm, who believed in having everything done in a most thorough and practical manner. He remained with the firm eighteen years, gaining a wide and valuable practical experience in the various horticultural departments and making a special study of landscape gardening. From Brighouse he entered private service, spending five years as head gardener at Huddersfield, and three years at Calverley. He then started business on his own account as a landscape gardener, his past experience enabling him to carry out with success the laying-out of many private gardens, and the construction of rock gardens, bowling greens, tennis courts, etc., in Huddersfield, Bradford, Leeds and Pudsey. Having many calls for advisory work in all branches of the profession, Mr. McCormack removed to Harrogate, where he undertook the lay-out of four acres of ground at Rossett Acre, consisting of rock gardens, Rose garden, tennis and ornamental lawns, kitchen garden and orchard. He still carries on business as landscape gardener and consulting horticulturist, specialising in hardy plants in general, alpine plants and Roses in particular, and garden construction, with a special leaning towards the making of Rose, rock and formal gardens. Before removing to Harrogate, he became President of the Bradford and District Professional Gardeners' Association, and at the same time he was on the committee of the Pudsey and District Chrysanthemum Society, and was made a life member for services rendered. He took part in the formation of the Harrogate and District Horticultural Association, this being the third year of its existence, became Vice-Chairman and subsequently Chairman. Last January, he was honoured by being elected for the fifth year in succession as President of the Professional Gardeners' Association, which has now a goodly membership.



MR. J. T. McCORMACK.

A Giant Fasciated Thistle.—We have received from Messrs. Carter Page and Co., Ltd., a curiously fasciated Thistle, which was brought to them by Francis Gibbs, Esq., of Wales. The combined, flattened stems measure three inches across at the base, and four inches across at one foot, where the stems divide into two fasciated branches, one-and-a-quarter-inch and two-and-three-quarter-inches across, respectively, each crowned at the height of twenty-two inches with large clusters of inflorescences, and the whole being densely covered with foliage.

Opening of Charlton Park, Greenwich.—On Saturday, July 13, Lord Monk Bretton presided over an influential gathering when the Lord Lieutenant of London, Lord Crewe, opened Charlton Park, Greenwich, to the public. The park originally formed part of the grounds of Charlton House, which, it is stated, was erected for the occupation of Prince Henry, eldest son of James I. Practically the whole of the forty-two-and-a-half acres which has been acquired at a cost of £22,250 by the London County Council, has been laid out for games and sports. In addition to cricket, football and hockey pitches, grass lawn tennis courts and pitches for netball, a running track has been made at a cost of £2,000. The total cost of laying out the Park, including the track, was £15,000. An additional three acres is to be used for the provision of an open air school.

Legacies to Gardeners.—The late Mrs. Frances Helen Maria Jacobs, of Fairfield, Lower Shiplake, Oxon., who died on March 27, 1929, left £500 to her late gardener, Mr. Francis John Fuller.—The late Mr. William Dale Shaw, J.P., of Homefield, Longwood, Huddersfield, who died on April 12, 1929, left £120 to his gardener, Mr. John W. Ascough, if still in his service.—The late Mr. James Henry Sadler, J.P., D.L., of Lydiard, near Swindon, who died on March 27, 1929, left £50 to his gardener, Mr. Newman.

The Destruction of Wasps.—The damage done to fruit crops annually by wasps is enormous, so that the small booklet entitled *Wasps and How to Destroy Them*, by J. D. Wrangham, B.A., and published by the Pilot Press, 2, Little Essex Street, Strand, W.C.2, price 1s., should be welcomed by all gardeners and fruit-growers. Mr. Wrangham devotes a chapter to "Situations and Methods of Finding Nests," giving sound advice upon the methods to be adopted in the tracking of wasps to their nests, and he then proceeds to deal with the destruction of the nest. The three practical mediums for this purpose are poison, preferably in the form of cyanide of potassium or cyanide of soda; tar, and fire. The two poisons advised may be procured from any chemist for the purpose at 8d. per ounce; they are exceedingly dangerous, and should not be left about or entrusted to children; as they deteriorate rapidly in air, they should be kept tightly corked. For general purposes these cyanides are best in lump form. The directions for use are:—Place a lump of the poison (about the size of a man's thumb-nail) in a spoon attached to a stick, fill the spoon with vinegar, and deposit the two in the entrance hole of the nest. The fumes given off will kill the wasps directly they come into contact with them. This is by far the cleanest and most humane method. Tar is the cheapest and simplest method, while, when nests are awkwardly situated, burning with the aid of paraffin at night may have to be resorted to. The various methods to be adopted are described in detail, and we recommend Mr. Wrangham's booklet to all gardeners as a handy little reference work to keep by them.

Parks Superintendents' Conference at Manchester.—There could have been no better place than Manchester in which to hold the annual meeting and conference of the Association of Parks and Botanic Gardens Superintendents, for not only has Manchester a very fine public parks department and system, but the Superintendent, Mr. W. W. Pettigrew, is well-known throughout the kingdom as one of the finest of organisers, administrators and cultivators that adorn the horticultural profession; Mr. Pettigrew is the President of the Association for this year. The Conference was well attended by members from many parts of England, Scotland and Wales, and by various Chairmen of Parks Committees who received invitations to attend as delegates. This association of Superintendents and Chairmen is an ideal one, because in not a few instances the latter are also horticulturists; if they are not, their meeting with the leading Parks Superintendents of the kingdom can have nothing but good results both to themselves and to the towns they represent. The delegates were received by the Lord Mayor of Manchester, Col. E. Westcott, and the various parks under the control of the Corporation were visited. The Conference proceedings lasted from July 8 to July 10. The Secretary reported that the membership is 140. The Treasurer's Statement of Accounts showed a balance in hand of £154. The following officers were elected for the ensuing year:—President, Mr. W. Besant, Glasgow; Vice-Presidents: Mr. W. W. Pettigrew, V.M.H., Manchester, and Mr. T. Hay, V.M.H., Hyde Park; Hon. Secretary and Treasurer, Mr. A. Blackburn, Blackpool. Papers were read by Mr. R. B. Dawson, M.Sc., Director of Research of the J. A. C. of the Golf Union on "Some Green-keeping Problems and the Programme of the Research Board"; by Mr. Councillor W. Melland, Manchester, on "The Playground Movement and its Relation to Parks Departments"; by Mr. J. T. Jeffrey, Edinburgh, on "The Preservation of Town Amenities," and by Captain B. H. MacLaren, on "The Parks of Paris and Brussels." On Tuesday afternoon the delegates visited the Parks of the City of Salford, and on Wednesday the Parks of the City of Manchester, and in both cities there was much of interest to be found in what is being done by the Parks Departments for the physical and mental welfare of the citizens by the provision of facilities for the various forms of outdoor recreation both for adults and children, and by the horticultural displays which are maintained at a very high standard.

Forestry Congress in Stockholm.—The International Congress of the Union of Experimental Forestry Institutions was opened at Stockholm, on Tuesday, July 23, by the Prime Minister, Admiral Lindman. Proposals were made for the strengthening of international co-operation in forestry. The President of the Congress, Professor Henrik Hesselman, pointed out that the science of forestry was wholly international, and served the entire human race. The Congress should, therefore, agree to standardised measurements and terminology. M. Flury (Switzerland) proposed the organisation of an International Bibliography of Forestry, and Señor Velasquez (Spain) proposed the establishment of a central bureau to assist international co-operation. M. Guinier (France) proposed an international organisation for the delivery of forest seeds of guaranteed quality and origin, in order to avoid the failures hitherto frequent owing to the use of inferior seeds.

Fruiting of Styrax Wilsonii.—Major Albert Pam writes from Wormley Bury, Broxbourne, Hertfordshire, as follows:—"In a note on Styrax Wilsonii by *North Wales* (see p. 46), he states that this species has not set seeds in his garden. Here, seeds have ripened regularly for several years, and I have a nice lot of seedlings, some over a foot high, raised from seeds sown the year before last. There are also at least a dozen self-sown seedlings coming up around my large plant which I originally placed under a south wall, fearing that the species might be tender. I am afraid that this dry, hot summer has been too much for it in this situation, and that it has received a bad check while other plants in the open have come through last winter and this summer perfectly."

Verbena corymbosa.—The plant which was exhibited by Mr. Clarence Elliott as Verbena species, C.E. 354, at the Royal Horticultural Society's fortnightly meeting on July 16, and received an Award of Merit subject to its being named (see p. 58), has now been identified as Verbena corymbosa, Ruiz and Pavon.

Appointments for the Ensuing Week.—MONDAY, JULY 29: Harrogate and District Horticultural Association's meeting. TUESDAY, JULY 30: Royal Horticultural Society's Committees meet; Alderley Edge and Wilmslow Horticultural and Rose Society's Show; Royal West Renfrewshire Horticultural Society's meeting. WEDNESDAY, JULY 31: Chesterfield Horticultural Society's Exhibition; Royal Lancashire Agricultural Society's Exhibition (four days). THURSDAY, AUGUST 1: Bideford and District Horticultural Society's meeting. SATURDAY, AUGUST 3: Benefield Horticultural Society's Show; St. Ervan and District Garden Show.

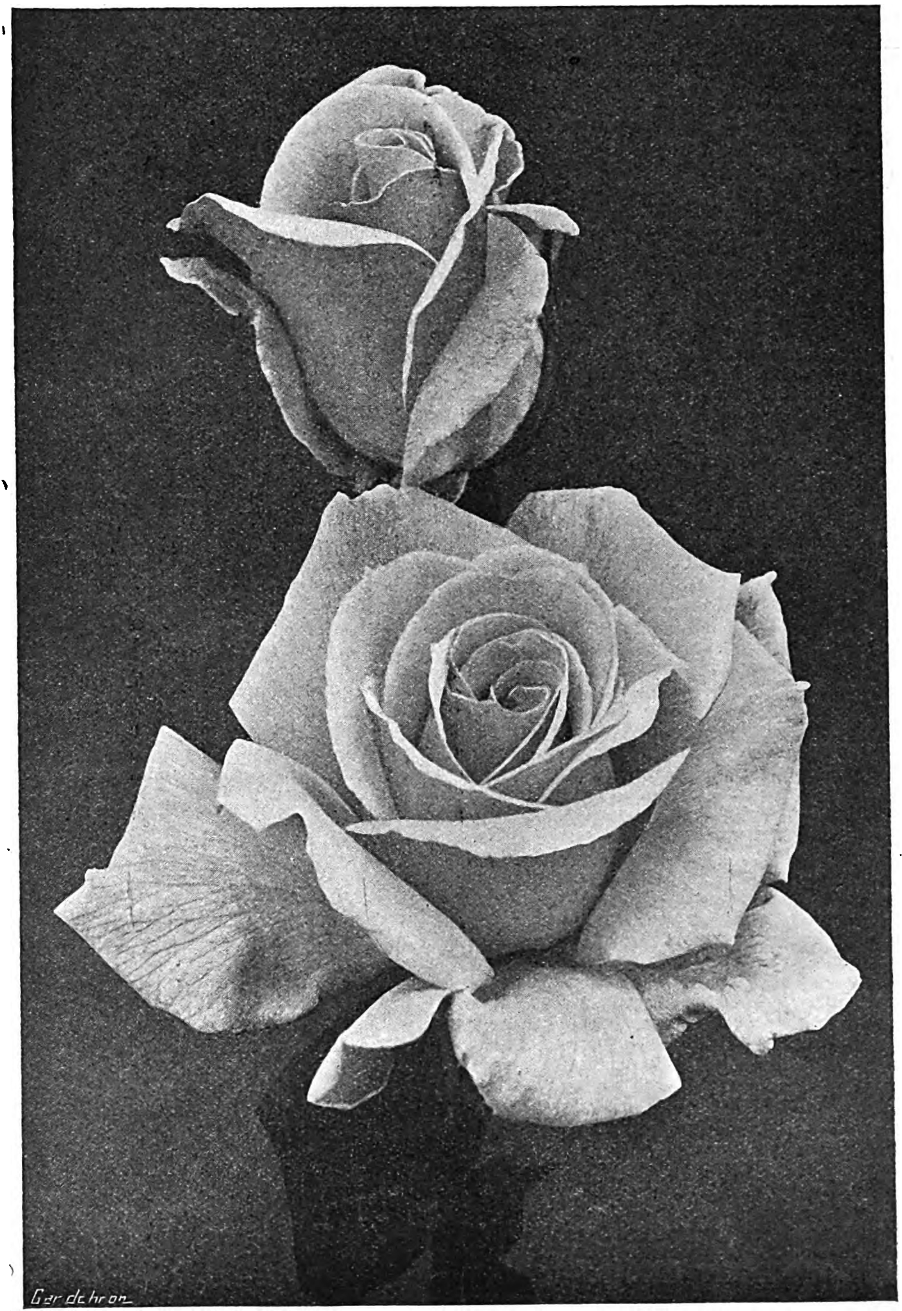


FIG. 29.—ROSE MRS. SAM McGREDY.

N.R.S. Gold Medal, Hereford, July 10. Flowers orange-red and apricot. Shown by Messrs. S. McGredy and Son. (see p. 55.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Preservation of Plant Sticks.*—One frequent complaint I have heard made by exhibitors is, that the constant tying and untying of plants, rendered necessary by the rotting of the sticks in pots, takes up much time, and gives much additional trouble. I myself have experienced this, and, consequently, was induced to try some experiments as to the best means of preserving the sticks. Having tried various preparations, a solution of gutta percha among the number, I find what painters call knot-varnish (or what they put on knots before painting the wood) to be by far the best; even some small sticks, not so thick as an ordinary penholder, have, after twelve months' use, appeared as sound as on the day they were put in. I simply dip the stick into a bottle of the varnish, and let it drain off. I think, on further trial, it will be found to bear out the above statement. The sticks, of course, when dry, can be painted any colour required; perhaps, however, some of your readers may know something even better than this; if so, I hope they will favour me with their experiences in the matter. *S. E. C., Cheltenham. Gard. Chron., July* 29, 1854.

Publication Received.—*C. R. S. and His Friends,* being personal recollections of Charles Roach Smith, F.S.A., and his friends; by Henry Smetham; pp. 252, illustrated; The C. W. Daniel Company, 46, Bernard Street, W.C.1; price 7s. 6d. net.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Epidendrum prismatocarpum.—Specimens of this robust-growing and highly decorative Orchid have been making an attractive display of flowers for many weeks, and proving the lasting qualities of the flowers under moderately dry conditions. This is, of course, a great drain on the plants, and any that are not in a robust state of health should not be allowed to carry the flowers over a long period; the flower spikes should always be removed if any shrivelling of the bulbs is noticed. As in the case of most Orchids, weak plants that are allowed to flower take a long time to recuperate, and require a great deal of attention to bring them to a healthy growing state again; in most cases it is the best policy to remove the flower spike before any increased drain on the plant's strength occurs. On the other hand, if a scape is allowed to develop to the stage of opening its flowers, this often encourages fresh root-action, and keeps the plant to its proper season of growth; also there is less danger of the development of abnormal and twisted growths, which often occurs if the flower spike is removed in a very young stage. The damage is done when a weak plant is allowed to carry the spike for a period after the flowers have expanded. Robust and healthy plants will easily carry the strain until the flowers begin to fade, without any appreciable harm being done to them.

Potting and Compost.—After the flowering period of this evergreen Epidendrum is over, any necessary repotting may be done with a view to the plants remaining undisturbed for two or more years, as they resent root disturbance, and should only be repotted if the compost has become impoverished, or the plants have overgrown their receptacles. When repotting specimens, all useless back pseudo-bulbs should be removed, together with the decayed roots and old compost; two or three pseudo-bulbs, with each growing lead, are sufficient to retain to secure a well-balanced plant. If large specimens are desired, two or more leads should be arranged towards the centre of the receptacles, which should be well-drained. A compost of Osmunda and A.1. fibres, in a fairly rough state, and a little chopped Sphagnum-moss, should prove suitable, adding lump charcoal as the repotting proceeds. The compost should be pressed firmly among the roots. Water should be applied sparingly at fairly long intervals, so that the soil becomes dry between each application, until the roots are well established. So soon as the plants are growing well, more water will be needed at each application until growth is complete, when only sufficient to keep the plants in a normal state will be required. This Epidendrum thrives well in a light position in the intermediate house, and may be grown in association with the Cattleyas, as they require similar cultural treatment to the latter.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

Strawberries.—To procure out-of-door dessert fruits early next year, the rooted plantlets should be afforded a position on a south border, and the earlier these are planted the better will be the prospects of obtaining first-class fruits next season. A border which was deeply dug and liberally manured during last winter, and has since carried a crop of early Peas or Potatos, should be suitable, the soil requiring but little preparation beyond an application of lime and a light digging. The soil should be made firm by treading, as the Strawberry favours a firm rooting medium. For this early supply of fruits the plants may be set out much closer than is general, cropped for one season only, and a fresh bed made annually. When all is ready for planting, see that the soil about the plantlets is thoroughly moistened. Lift the plants with all the roots possible, and plant them at intervals of fifteen inches, in rows twenty-four inches apart. Plant rather deeply, but not so deeply as to bury the crown or growing point. Make the holes deep and wide enough to accommodate all the roots, return the excavated soil, and make quite firm. These early plants will furnish dessert fruits a week or two in advance of the main beds, and are valuable in maintaining an unbroken supply after the indoor crop is over. The after cultivation will be to keep the surface soil constantly stirred, when in a dry condition, with the hoe or hand cultivator; and should the young plants produce runners, these should be promptly removed.

Varieties for Early Crops.—The most suitable varieties for this purpose are good strains of The Duke, King George and Royal Sovereign. The variety favoured by some of the Hampshire growers is Madame Lefebvre, which, they claim, ripens some days earlier than The Duke or Royal Sovereign. As soil and district are such important factors in the successful cultivation of the Strawberry, it is to be recommended that the newer varieties should be given a fair trial so that each grower may determine for himself what varieties will do best in his particular soil and district.

Raspberries.—Immediately the crop is finished, the old fruiting canes should be cut out close to the ground, and the best-placed canes thinly and loosely tied in to the stakes or wires. Cause so little damage to the young foliage as possible, and whenever practicable, afford the rows a copious watering, so that the canes may attain their full height. The variety Lloyd George is a wonderful cropper, producing very large fruits on the laterals almost the entire length of the cane, but Laxton's Bountiful has a much better flavour, crops abundantly, and is undoubtedly the strongest grower we have here. Pynes Royal is the best dessert variety, of very fine flavour, but of medium growth with us. Very few canes are produced, and the foliage is most distinct.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Late Peach Houses.—The trees in these look well, and, like the previous set, are now quite forward enough, as Peaches out-of-doors are late. Natural shade from the leaves and shoots will favour free development of the fruits, but shading later on will affect the colour and flavour adversely, as Peaches require plenty of light and air when passing through the final swelling stage to ripen them well and bring out their best qualities. Ventilators should be opened to the full extent, and closing of them deferred until the sun is off the house, while a little extra night air will assist in retarding the crop if this is necessary, as no retarding can be done after stoning is completed. The trees should be kept well supplied with water and stimulants, according to requirements.

Watering Outside Borders.—The rainfall in most parts of the country has been extremely light and quite inadequate to the requirements of vines and Peaches in outside borders. With such borders, composed as they are of porous materials through which water passes quickly, a timely watering is repaid over and over again by an improvement in the weight and quality of the crops, especially during the period in which the roots have to perform most of their work. The bulk of the watering should be done when the fruits are swelling and stoning, and growth is in full force. If the water is tepid, so much the better. The temperature of the water may be raised by exposure in open tanks for twenty-four hours. Where water is scarce a timely mulching of fresh stable litter, especially after warm thunder showers, will often render artificial watering unnecessary, but in a season like the present a timely watering gives the trees a step forward, which cannot be afforded in any other way. The spread of red spider, the premature dropping and ripening of Peaches, and the shanking of Grapes, is often due to dryness, or a system of applying driblets of water, but the mischief does not end there, as the roots descend in search of moisture, with the result that both the vines and Peaches whose roots are forced down become gross and unmanageable, and some considerable time must elapse before they can be restored to a fruiting condition.

Pot Vines.—Those intended for starting in December will now be swelling their buds, and the canes will soon be changing to the bright brown colour which indicates ripening. This process must not be hastened too much. Feeding and syringing should be continued, but more air should be given gradually, and the house kept slightly drier through the night. So soon as the canes, which should be stopped at six to nine feet, have coloured their whole length, a few of the lateral growths may be removed close to the main buds, commencing at the base and working gradually upwards. A few should be left near the top to run wild, and each main leaf should be carefully preserved to prevent the buds from breaking prematurely. If the season remains congenial, the vines may be removed later and secured to a south or west wall in the open air to ripen, or kept in a house ventilated as for early vines.

THE FLOWER GARDEN.

By R. FINDLAY, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Lavender.—Flowers of the Lavender for preserving for perfume purposes should be gathered when they are open; they should only be cut when the bushes are dry. The drying process should then be carried out slowly and not in full sunshine, or much of the essential oil which provides the perfume will be lost. Immediately after the flowers are gathered, clip the bushes with hedging shears to keep them neat and compact. For low hedges, dividing lines, or for covering dry banks, Lavender is an admirable and useful subject.

Spring Bedding Plants.—Plants for this purpose that have been raised from seeds, as Wallflowers, Sweet Williams and Canterbury Bells, and also the various perennials that were sown early, are now large enough to be transplanted to nursery lines. Do not transplant into very rich ground, which is conducive to soft, sappy growth; such plants do not winter so well as those grown on poorer soil. If the weather is dry, frequent good applications of water will be required until the seedlings become established, after which the constant use of the Dutch hoe will ensure firm, healthy growth.

Climbing Roses.—These are now making rapid growth, and the young shoots required for next season's flowering ought to be carefully tied in to prevent damage by wind. This applies more to the Wichuriana group than the others, as so much depends on being able to have vigorous young growths every year to replace those that have flowered.

Hedges.—These, in the majority of cases, may be clipped now; in fact, it is an advantage in some cases if this can be done frequently; by doing so a closer hedge is obtained more quickly than with only an annual clipping. A well-grown and well-cared for hedge is an ornament to any garden, but how often do we see them in poor condition through irregular clipping. When clipping hedges, cut close; a very large percentage of hedges are spoilt through neglect of this. It is quite an easy matter to put in a few stakes and stretch a line along them as a guide to cutting, and this well repays the extra trouble involved. Take special pains to leave the top level as this usually catches the eye first. A common fault is to be found in having hedges wider at the top than at the base. This is accounted for by the growth being stronger at the top, and clipping is more difficult for a man standing on steps or trellises than on the ground. Yet every endeavour should be made to keep hedges wedge-shaped; a hedge with a narrow top is less likely to be damaged by heavy falls of snow during winter.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Mignonette.—This delightfully scented annual always attracts attention when grown in pots under glass, and is extremely useful for the decoration of the conservatory. Seeds may be sown now, and again during September. The seeds are probably best sown in the pots in which the plants are to flower, as Mignonette does not transplant too readily. The receptacles should be clean and well-drained, and the compost should consist chiefly of good, rich loam, with a good proportion of old mortar-rubble added to keep it open and porous. In fact, lime is essential for the successful cultivation of Mignonette. The compost should be in such a condition as to allow it to be made tolerably firm. While some growers prefer to sow the seeds in sixty-sized pots, so that they may, in due course, move the plants on into six-inch pots, others prefer to sow them directly in the flowering pots; the latter method is quite satisfactory, provided careful watering is practised. After sowing the seeds, stand the receptacles in a cold frame, and provide shade from bright sunshine until germination takes place, when the seedlings may be thinned out to four or five in a pot. Watering should be done with care until the receptacles are well filled with roots, and even then care is needed; air should be admitted freely at all times. During the winter, the plants should be given an airy positon near the roof-glass; a house from which frost is only just excluded will suit them best.

Cyclamens.—Seeds of this popular plant should be sown now to provide plants for flowering next year. The soil should be well watered several hours before sowing takes place. The compost should be light in character, and the seeds so arranged that the most forward plants can be removed without unduly disturbing others that have been slower in germinating, as they are generally irregular in this respect. Stand the seed-pan in an intermediate house, cover it with a piece of glass and afford shade until germination takes place, when the seedlings should be grown near the roof-glass during the dull months of the year. The advanced seedlings should be pricked off into pans or boxes when they are large enough to handle, and potted off singly into thumb pots in a light, open compost when this becomes necessary.

Lilium candidum.—This fine old plant may be successfully grown in pots for decorative purposes, provided the plants are kept at all times under the coolest possible conditions. If success is to result, it is essential to obtain strong, healthy bulbs, and pot them during the present month. As this species does not root from the stems the bulbs should be little more than covered. After potting, stand the pots in a cold frame so that the lights may be placed over them during wet weather. Make no attempt to coddle this Lily.

THE KITCHEN GARDEN.

By W. G. STAWARD, Gardener to LADY MARGARET RYDER, Knowle Gardens, Dunster, Somerset.

Turnips.—A further sowing of white, yellow and coloured varieties should be made now. Thin the plants so soon as they are fit to handle, and after thinning, stir the soil between the rows with the hoe.

Spring Broccoli.—The ground for Broccoli should be manured well and dug deeply. The plants should now be ready for planting in their permanent quarters. Arrange the varieties in rotation, according to their season, so that when they are ready for cutting the ground may be cleared and prepared for the next crop at once. It is wise to grow several varieties of Broccoli so as to discover those best suited to the district, as some varieties do better in certain areas and suit the soil better, than others.

Onions.—If intended for the production of large bulbs, Onions should be kept free from weeds; the hoe should not be used, the weeding being best done by hand. Feed the plants regularly every week with liquid manure, and if the weather continues very dry, spray the plants overhead in the evenings. Should any of the plants be badly attacked by mildew, remove and burn them; this disease usually puts in an appearance if the soil is allowed to become too dry. If the plants have been mulched properly and watered regularly they are seldom troubled by this disease. To check mildew, spray the plants with a solution of sulphide of potassium (one ounce to three or four gallons of water). Sulphide of potassium may be procured from any chemist; it is cheap, but very strong smelling, and should be kept in an air-tight box.

Celery.—Early Celery is now growing fast and earthing up should be proceeded with. A light application of an approved fertiliser, and a thorough watering should, however, be given a day previous to performing this operation.

FIG. 30.—ROSES AND IRISES COVERING A BANK IN A PROVENÇAL GARDEN.
(see p. 67.)

Swedes.—When thinning Swedes, a few of the seedlings may be transplanted. These should be kept well supplied with water until they become established, when frequent stirring of the soil between the rows with the Dutch hoe will prove beneficial.

FOR NORTHERN GARDENERS.

By JOHN HILL, Gardener to ANDREW ARTHUR, Esq., Rosemont, Monkton, Ayrshire.

Vegetables.—When lifting early Potatos, it is advisable to select sets of a suitable size from the best stools only, if the strain is to be kept up to the mark. Plants with a goodly number of evenly-sized tubers, without many under-sized specimens, should be chosen. These seed tubers are best lifted green (or unripe) and laid out in boxes to weather before storing, as, when so treated, they start away earlier than matured tubers. Ground cleared of early crops should be planted with Leeks, late Cabbages, Asparagus Kale, or early Cauliflowers. Summer Spinach may also be sown to provide a crop for autumn use, while seeds of Globe Beet may still be sown on an early border. Cultivate all crops regularly so long as it is possible to get among them without damaging the leaves.

Cuttings.—For rooting cuttings of alpine plants and many kinds of shrubs and also herbaceous plants, a cold frame should be prepared, placing a layer of compost consisting of equal parts of loam, leaf-mould and sand in it and covering this with a layer of pure rough sand, about half-an-inch deep, making the whole quite level and firm. Soft cuttings, which will root in a few weeks, should be kept apart from those of more woody subjects, which will take much longer to root. They all, however, will require similar treatment. Do the work speedily to prevent wilting of the cuttings, and water them directly they are inserted. I have proved that a thin coating of whitewash on the glass is much to be preferred to mats, as it prevents burning while allowing the heat of the sun to warm the interior of the frame, thus greatly accelerating the rooting process. The sashes should be kept closed, even on the hottest day, air being given during the cool of the night, when no wilting will take place. Spray the cuttings frequently. Where heel-cuttings of shrubs can be secured, these should be used, and in all cases short, well-grown growths should be secured in preference to soft, thin wood. In ten days or a fortnight the softer growth-cuttings should be given more air gradually, until normal conditions are reached. Where a frame is not available, quite good results may obtained by digging a pit or hole in the ground, about one foot in depth, and making a cutting bed as advised above in the bottom of it. After inserting the cuttings and watering them in, a strip of scrim canvas should be stretched over the top and secured all round against wind; if this is kept frequently moistened it prevents too rapid moisture evaporation, and gives a certain degree of closeness necessary to root formation. A position not likely to be flooded, with a good, open subsoil, is necessary for this latter purpose.

Pyrethrums and Paeonies.—Should these require transplanting, now is a suitable time to attend to them—just as they pass out of flower. The ground to receive them should be double-dug and manured heavily, as both are gross feeders, especially Paeonies. Divide the crowns carefully, and should the weather be dry afford plenty of water at the roots and damp the foliage well in the evenings until root action is proceeding again. Pyrethrums should be divided with a sharp-edged tool, but care must be taken not to shake the roots free of soil, or the plants may receive too great a check.

PLANTS NEW OR NOTEWORTHY.

HELIOPHILA INTEGRIFOLIA, LINN.

A CRUCIFEROUS plant received recently at Kew for determination from Messrs. Sutton's Trial Grounds at Slough proved to be a species of Heliophila. As the plant promises to be of considerable decorative value for the cool greenhouse, its precise determination and botanical history seem to be desirable. At Slough it is at present grown in hanging baskets for which it is particularly suitable with its long, gracefully arched branches and deep sky-blue flowers. Seeds were collected in South Africa by the Hon. Mrs. Ryder, of Durns, Beaulieu, Hampshire.

The species has a considerable botanical history. It was first described in 1763 by Linnaeus in the *Species Plantarum* (Ed. 2, pt. 2, p. 926) as Heliophila integrifolia. As the name implies, the leaves of the type specimen are entire; in examination of herbarium and fresh material, however, this would appear to be something of a botanical misnomer, as the leaves in the majority of cases are lobed to a lesser or greater extent. Specimens are found in which both types occur, the upper leaves, and those on young plants, being entire, and a gradual transition is found to exist from these to deeply-lobed leaves. It would, therefore, appear that this character is extremely variable and no great stress should be laid on the lobing of the leaves. However unfortunate it may be that the type described by Linnaeus should be peculiar in this respect, there can be no doubt as to the identity of plants referred to the same species, and the name Heliophila integrifolia must remain.

In 1789, Linnaeus described the same plant as Cheiranthus africanus (*Amoenitates Academicae*, p. 90); as in Heliophila integrifolia the leaves are given as "lanceolate, entire." Lamarck in the same year described Heliophila pilosa (*Encyclopédie Méthodique Botanique*, III, p. 90), which may be undoubtedly considered as synonymous. Here the lobing of the leaves is noted, for to quote Lamarck's own words, "*Quelques individus se trouvent, à la vérité, à feuilles toutes très entières; mais la plupart ont des feuilles, les unes entierès et les autres découpées même profondément vers leur sommet.*" Probably on account of the more appropriate name, the plant has been known as Heliophila pilosa since the time of Lamarck. Sonder, in the *Flora Capensis*, maintains this species, and although he describes the leaves as "entire or sometimes lobed near the apex," he creates, among others, the variety integrifolia, with entire leaves, to which he refers the original Heliophila integrifolia, L. The distinction between his varieties, however, is not tenable, and the species should be considered a variable one, to which the oldest name of Heliophila integrifolia must be given.

From the above short historical account it is seen that the plant has been known for a very long time. It is an annual and native exclusively of South Africa. The branches are long and drooping, gracefully upturned at the apex, glabrescent, or more usually covered with long, spreading, white hairs. The leaves, which are alternate as in most members of Cruciferae, vary from about 1—6 cm. in length; they are lanceolate to oblanceolate, acute to subobtuse, at the apex, narrowed to a subsessile base, entire or three or more lobed towards the apex, in some instances the lobing reaching almost to the base, glabrous or hirsute as the stems. The inflorescence is an elongated raceme, terminal on the main and lateral branches. The pedicels, barely 1 cm. long in flower, lengthen slightly in fruit, and are softly pubescent as are also the sepals; these have a narrow, membranous margin, and the lateral pair are but slightly saccate at the base. The flower is open, with the petals spreading, and measures about 1·5 cm. across; the petals are obovate in shape, a beautiful bright blue in colour, with a green, white-edged patch at the base and a lateral nectary. The mature siliqua is about 6 cm. long, cylindrical, with straight margins or slightly torulose, capped by the persistent swollen base of the style. *Marion B. Moss, Kew.*

[In our issue for June 22, Fig. 233, p. 461 (Vol LXXXV), we gave an illustration of a plant which received an Award of Merit from the R.H.S. on June 11, under the name of Heliophila linearifolia, and this has since been determined a H. longifolia, *D.C.*; it is, apparently, distinct from the plant here described. EDS.]

INDOOR PLANTS.

ABUTILON MOSAICUM.

UNDER the name of Abutilon mosaicum a useful greenhouse shrub is occasionally met with, yet it is a plant of merit which flowers freely from spring until autumn, and seldom fails to yield a few blossoms during the remaining part of the year. At first sight it is not unlike A. megapotamicum, but the sepals of the flowers are shorter, giving them a singularly beautiful, shallow-campanulate appearance. The tessellated leaves are mottled with yellow in true mosaic pattern, and here this feature of plant life, so much dreaded in some races of plants, fills the purpose of added beauty in this particular species.

Of relatively slow growth, A. mosaicum eventually makes a bush of considerable size, and there is an example in the conservatory at Warwick Castle which is an object of rare beauty. Some ten feet high, with an umbrella-like spread of eight or ten feet, and carrying many hundreds of its campanulate flowers, which hang like myriads of miniature Chinese lanterns, it compels admiration. The flowers are of that deep brick-red shade which is so appealing in a flower, and the mosaic foliage adds to their charming setting. *A. M. W.*

FREESIAS FOR MARKET.

THERE are some flowers which are well worth growing, not only for their beauty, but also from a commercial point of view, and the Freesia may justly claim to be in this category. Year by year millions of Freesia corms are grown for market, but to get the best prices for blooms, the bulbs should be planted so soon as obtained.

With regard to the methods of cultivation, those adopted by Guernsey growers are worthy of note. The corms are planted in boxes two feet long by one foot wide and four inches deep. About seventy to eighty first-size corms, 120 second-size, or 150 (sometimes more) third-size corms are sufficient for boxes of this size. Some old, decayed manure is put into the boxes to a depth of about one inch, over this well-worked garden soil to a depth of about one-and-a-half inch spread evenly, and the corms are placed on this, and covered to a depth of one inch. The boxes, when planted, are placed in a sheltered position; on no account is the soil allowed to become dry.

In four or five weeks' time, when so planted, the growths commence to peep through the soil. Beyond weeding and watering, nothing more is required until the first week in November, when they should be removed to a greenhouse. If there is a congenial temperature in the house the plants will commence to bloom in January, but if the house has no heat at all, the flowers will not appear until February or March.

If the Freesias do well, as they should do under these conditions, they should produce at least four times the quantity of corms planted; for example, suppose one bucketful of corms is planted, then one may expect four times the quantity as the crop, unless they are heavily forced—the use of artificial heat does not, as a rule, result in first-size corms. The largest will only be considered in the trade as "seconds," and should be planted out for one year.

Although F. refracta var. alba is the variety most sought after, the mixed sorts are coming into prominence with market growers, chiefly because many are constitutionally stronger and more sweetly-scented than F. refracta var. alba.

Where the Freesia is only grown for the production of blooms, the second and third size corms will be quite good enough for this purpose. *G. B.*

TREES AND SHRUBS.

AESCULUS INDICA.

THE Indian Horse Chestnut, as this tree is commonly termed, flowers a month to five weeks later than the Common Horse Chestnut, and, although a native of the Himalayas, a number of trees of it at Kew withstood twenty to twenty-five degrees of frost last winter without damage to a single twig. Several trees have flowered freely, one in particular, near the Refreshment Kiosk, being covered with the cylindrical panicles of white blossoms flushed with rose. Even when not in flower the luxuriant, shining, dark green foliage of this Aesculus gives it a value surpassing that of the Common Horse Chestnut for ornamental purposes.

Now that good seeds are produced on the Kew trees, and elsewhere, in most seasons, would-be planters should have no difficulty in obtaining trees for pleasure ground, avenue and park planting. The Indian Horse Chestnut promises to equal in size the Common Horse Chestnut in all but the coldest parts of Britain. As a wild tree in Northern India, it is stated specimens have been measured exceeding one hundred feet in height. *A. O.*

OLEARIA GUNNIANA.

THIS Tasmanian Daisy Bush is a shrub with several aliases. The medley of names is somewhat disconcerting to anyone who may find it masquerading as Eurybia stellata, or Olearia stellulata. Despite a doubtful reputation for hardiness, it came through the past severe winter in a Glasgow garden almost unscathed. Indeed, the experience would seem to have spurred it to exceptional effort, for seldom has it been so florally effective as during the past few weeks. The loose, Michaelmas Daisy-like heads of white, yellow-disked blooms, which, individually, are an inch in diameter, borne at the apices of the previous season's growths, are conspicuously noticeable in the shrub border, the effect being enhanced by the environing, darker foliaged subjects.

Olearia Gunniana is of hoary appearance, by reason of the silvery tomentum coating the leaves and stems of the young shoots. Apart from its decorative value as a single specimen, it is a showy subject for a hedge; not in the formal garden, where much trimming would be required, but for a position where its naturally dense and upright habit of growth would suit the special requirements without the too frequent use of the knife. *Jonathan Fiona.*

HARDY FUCHSIAS.

IT is claimed that many of the new, large-flowered hybrid Fuchsias are perfectly hardy, but it is only in favoured localities in the south that they make handsome bushes or ornamental hedges, and although under less favourable climatic conditions they may survive the winter and become, in effect, herbaceous plants, this change in habit detracts somewhat from the charm of the plant, which is more appealing as a graceful shrub.

But of all the forms of hardy Fuchsias, few are more interesting and useful than F. macrostemma var. gracilis and F. Riccartonii, two of the oldest sorts grown, the former having been raised in the Edinburgh Botanic Garden from seeds sent from Mexico in 1822, and the latter appearing a few years later in Riccarton Gardens, near Edinburgh.

There seems to be considerable confusion existing between these two plants, and this is probably due to the fact that they have several characters in common. Both plants have small, pendant flowers with oblong, pointed, scarlet sepals considerably longer than the deep violet petals; the stamens and styles are very long; the leaves small, opposite or whorled, and slightly denticulated, but here the similarity ends.

F. m. var. gracilis is much more graceful in habit and produces elongated, arching branches of flowers, whereas the branches of F. Riccartonii are much stiffer, the leaves shorter, the flowers larger and more open, and the young shoots more decidedly tinted red.

Both do particularly well near the seaside, but are good inland; both flower in great profusion, and under favourable conditions both make handsome bushes of high decorative value. *A.M.W.*

AESCULUS PAVIA.

A native of the southern United States, Aesculus Pavia, the Red Buckeye, is seldom seen in gardens in this country, although it is sufficiently attractive to merit inclusion in shrub collections, and makes an attractive specimen shrub or small tree for planting on lawns or in other prominent positions. For, although not so striking as some of the hybrid, red-flowered Horse Chestnuts, it is yet very beautiful when in blossom—during early June—and it is of compact habit, while it never attains large dimensions; as a shrub it will grow to twelve feet in height, but it is most attractive as a standard, for which purpose it is usually grafted upon another species. Grown in such a manner, it forms a compact, rounded or pyramidal head, its lower branches being quite pendulous.

Its leaves are lighter than those of the common Horse Chestnut, and are composed of five narrow, obovate or oblong leaflets which are bright green and glossy on the upper surface, and lightly furnished with down beneath, the margins being irregularly and sharply toothed.

This season, A. Pavia flowered very freely and made a very charming picture for, although the blooms never open out widely, they are so richly coloured as to attract the eye at some distance, and are borne in panicles five or six inches in length. The individual flowers are about one-and-a-half inch long, and are slender, the four petals, which have glandular margins, never expanding fully, although they open wide enough to disclose the yellow shaded throat, which tones with the rich red of the corolla.

A. Pavia, known also as Pavia rubra and Aesculus humilis (it was figured in the *Botanical Register*, t. 1,018, under the latter name), and in the tree state sometimes referred to as Pavia pendula, owing to its drooping lower branches, would appear to require no special soil conditions, and as it came through last winter unscathed, it may reasonably be classed as quite hardy.

DIERVILLA FLORIDA VAR. FOLIIS PURPUREA.

When visiting the Royal Botanic Gardens, Kew, early in June, a shrub which appealed specially to me on account of its exceptional freedom of blossoming and rich colouring was the above variety of Diervilla florida; when grouped in a bed by itself it makes a grand display. It would appear to be not so tall as the type, and is rather smaller in both flower and foliage, while it is of spreading habit, its branches not being so erect and arching as those of D. florida proper.

As stated, D. f. var. foliis purpurea is very free-flowering, for its growths were wreathed with flowers, which are rosy-purple on the outside and paler within, and combine well with the dark green, purplish edged and shaded foliage. This subject should be ideal for the rock garden of moderate size, or for the front of the shrub border.

Another striking variety of this popular flowering shrub is that with variegated foliage, *i.e.*, D. f. var. variegata. This variety has deep rose-coloured flowers and bright green leaves edged with yellow. There is a dwarf form of it known as nana, with pale pink flowers and creamy-white edged leaves. *M. W.*

ROSE GARDEN.

ROSE LADY WATERLOW ASSOCIATED WITH IRIS FLORENTINA.

The accompanying illustration (Fig. 30) depicts a very effective method of planting a bank, as practised in a Provencal garden.

Long branches of the pink Rose Lady Waterlow are pegged down, and the bank is planted with the pale heliotrope Iris florentina? The Rose, when in full flower, makes a charming groundwork for the lovely Iris, whose stately flower trusses rise above it. *C. Sandeman, La Calline, Valbonne.*

ROSA RUGOSA VAR. REPENS.

I was extremely pleased to learn of an old Rose, which I remember seeing about the time it was put into commerce in 1903, by Messrs. George Paul and Son, namely, R. rugosa repens alba (see p. 27). This was a drooping bush about three feet high, in my recollection. Visiting the nursery again in 1916, I found that the same bush, in the same place, had covered an area something like ninety-six feet in circumference.

R. rugosa var. repens is described as of weeping habit in at least two modern catalogues. In an official catalogue of the National Rose Society it is described as "creeping, weeping standard." The larger, original bush was allowed to grow naturally, and sprawled over the ground with its stout, tortuous stems, which sent up more or less erect flowering branches with a wealth of single white blossoms. I have also seen a smaller, sprawling bush, in a suburban public park.

It would appear that this same Rose has reached America, for Alfred Rehder, in his *Manual of Cultivated Trees and Shrubs* (1927), describes it as R. rugosa × arvensis, a procumbent shrub with large, white flowers in corymbs. He quotes Paul's name for it, but renames it R. Paulii, Rehd. They are fond of giving botanical names to garden plants in America; besides, it could not be considered a variety of R. rugosa from a botanical point of view, if it is a hybrid.

I do not know the origin of R. rugosa repens rosea. If it is of the same habit as the original, it could easily be a colour sport. The white one is certainly a fine plant for covering banks.

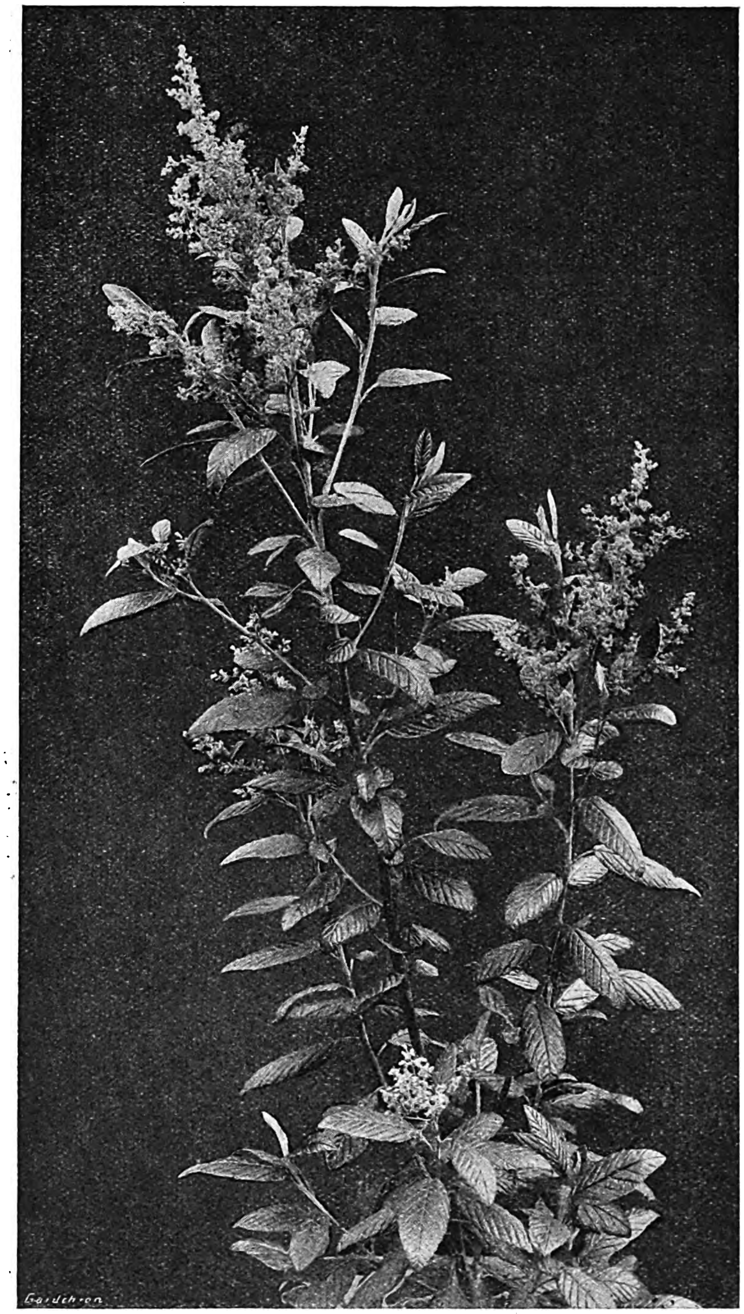


FIG. 31.—POMADERRIS APETALA.
(see p. 69.)

ROSA CALOCARPA.

In nursery catalogues the above Rose is listed as a variety of R. rugosa and described as bright rose, succeeded by rich scarlet fruits. This is the hybrid (R. rugosa × chinensis indica) which originated before 1891, yet it is not so common as one might expect. The R. rugosa parentage is quite obvious, but the leaves are smaller and almost smooth (not wrinkled). The stems, flower stalks, fruit and calyx are less bristly than is R. rugosa. This I have seen from Woburn, the Duke of Bedford's garden, and the flowers are quite vivid in colour, and single. *J. F.*

ALPINE GARDEN.

GENTIANA DECUMBENS.

It is difficult to understand why the late Reginald Farrer was so averse to this Gentian, dismissing it as of "ugly rankness," and as suitable for only "the coarsest parts of the garden" (*The English Rock Garden*). Surely such condemnation is unwarranted. True, if relegated to the rough life suggested, it will become rank and unattractive, producing its naturally ample foliage in excess, and at the expense of its blossoms; but given a suitable position, in practically full sunshine, and in deep, loamy soil, it will prove very attractive, and produce its blossoms profusely from mid-summer onwards.

Under such conditions, G. decumbens forms a close clump of long, glossy, rich green leaves, from among which will be produced, in early July, masses of rather stout, leafy stems, semi-erect, or nearly prostrate, and in the axils of the leaves will appear clusters of rich blue—with just the slightest tinge of purple—flowers, these wreathing the stems for eight inches or so, and leading up to a large, terminal cluster.

Climatic conditions would appear to exercise a marked effect upon the flowering of this Gentian, which is, incidentally, a good perennial, for in a dry season like the present it is flowering with almost unseemly abandon, much more profusely than is usual,—although when treated with respect, it is never niggardly—and at the present time it forms one of the brightest patches in the rock garden. *W.*

MYOSOTIS SPATHULATA.

A very small Forget-me-not grown under the above name possesses a quiet beauty of its own, and is certainly deserving of a place in the choicest collections of alpine plants. The compressed cushions are starred with a multitude of milky-white blossoms, and a colony of the little hummocks is quite an intriguing feature. The plant enjoys a gritty soil, but will not submit to drought, and it should be surrounded with chips or half buried pieces of sandstone. It is a very charming subject for the alpine house if grown in a small pan and arranged with a few pieces of stone about it.

M. caespitosa var. Rehsteineri is another charming sort deserving of wider cultivation. In a cool, moist corner the dense mats of foliage will be liberally covered, in April and May, with rich, pure blue flowers. It thrives and spreads rapidly in a genial situation, persistently hugging the ground and providing a delightful foil to the rarer Snowdrops, Crocuses and other choice early bulbs. *Ralph E. Arnold.*

CAMPANULA KEWENSIS.

Many are the gems among the Campanulas which delight the cultivator of alpines, and he is always glad to know of fresh arrivals which may await his appreciation. The great influx of new plants from China and Tibet has to some extent retarded the advance of others, and hence the charming hybrid Campanula kewensis has been rather slow in attaining much popularity. Nor is it as yet very plentiful in nurseries, although when catalogued it is quite an inexpensive plant. Folks pay much higher prices for far inferior subjects because they are introduced under higher recommendations. I have no record of the date of origin of C. kewensis, and conclude that it has probably been sent out within the last ten years.

Its parentage is stated to be between two rather "difficult" Campanulas in the eyes of many alpinists—C. arvatica and C. excisa—but it is not a difficult subject. I am growing it in a moraine, mulched with whinstone chips, and it is apparently very happy there. This is the position recommended for it by some growers, and it is wise to adopt it with a first plant at any rate.

C. kewensis grows about three inches high, and has neat, light green foliage and pretty upright bells of a lilac tone, open and highly attractive. It is free-growing under favourable conditions and soon lends itself to propagation by division or cuttings.

DIANTHUS CAESIUS VAR. ARVERNENSIS.

Our native Dianthus caesius, the Cheddar Pink, loses nothing in comparison with its sister flowers from other lands, although there are inferior and poorly-coloured forms among the seedlings so frequently sold, and even among the wildings of its native district. In association, possibly, with other Pinks it has given some curiously little dwarf and inferior forms, such as the writer has seen in the crevices between stone pavements; so poor, indeed, were they that it was difficult to trace a family resemblance to the best varieties of D. caesius.

D. suavis, to which some accord specific rank, is hardly distinguishable from D. caesius, but D. c. var. arvernensis, a geographical form, is quite distinct. It may be described as a miniature D. caesius, forming close-growing tufts of leaves of a grey-green, which, in May and June, are almost entirely obscured by the hosts of charming little flowers of a bright rose-pink, on stems two or three inches high. It is growing here in the rock garden on a flat ledge and in a compost of loam, a little leaf-soil and some sand and grit. It is truly an exquisite little Dianthus, worthy of being cultivated in the most exclusive collection of alpine plants.

SEDUM ALBUM VAR. MURALE.

Our most sincere thanks are due to Mr. R. Lloyd Praeger for his admirable synopsis of the genus Sedum in the *Journal* of the Royal Horticultural Society, Vol. XLVI, 1920-21. It is a masterly contribution, and should be in the hands of everyone interested in the genus. It clears up many points which have puzzled growers. One of these has been the true name of a very attractive Sedum, which has been grown in gardens, sometimes as C. turgidum, and sometimes simply as S. murale. According to Mr. Lloyd Praeger, it is only a form of S. album, a very common species, and is named by that author as S. album var. murale.

One cannot dispute the decision of such an eminent authority, but from a garden point of view, C. album var. murale is a very distinct plant, much superior for garden purposes to any other form of S. album. Its distinctive features are that its leaves, stems and sepals are purple, and its flowers pinkish instead of white. Otherwise it differs little from the type but does not appear to be so aggressive. Mr. Lloyd Praeger states that its origin is unknown to him, and tells us that it is "a very useful plant for the rock garden." This it certainly is, and it makes a good wall plant also. I have a large number of plants of it here, and was surprised to find that a leading alpine grower in the trade did not know its name, and that several amateurs could not identify it either.

GENTIANA SEPTEMFIDA.

A well-known writer on flowers has justly stated that Gentiana septemfida is a "friend of man," in alluding to its ease of culture and its great beauty. Even in a genus comprising so many delightful plants, G. septemfida takes a worthy place and cannot well be omitted from any garden laying claim to the possession of a representation of the best hardy flowers. That it is as easy to cultivate in the border as in the rock garden is a strong point in its favour, as there are many who cannot congratulate themselves on the possession of even a small rock garden, let alone a large one. I am impelled to write this note after seeing a number of good plants in the front of borders of hardy flowers in a delightful garden I visited the other day. These plants were pictures of health and beauty, with their oval, pointed leaves and heads of glorious blue flowers, giving evidence of the suitability of the garden for their welfare. The garden in question is splendidly cultivated and no doubt the Gentians profited by the liberal supplies of old manure which are supplied to the borders alternately. The soil is not naturally a good one, with a large proportion of granite sand and grit in it, and all plants need to be well cared for to obtain the successful results shown. Loam and peat are recommended as a suitable compost for this glorious Gentian, but the peat may be omitted, if not obtainable, while a little old manure well below this fine plant will afford much assistance. *S. Arnott.*

HARDY FLOWER BORDER.

CORONILLA ELEGANS.

The genus Coronilla is not a very extensive one, and not many of its members are hardy in our climate, but the subject of this note, C. elegans, is a little-known plant which is worth a place in herbaceous borders.

A native of Serbia, it was distributed from the Belgrade Botanic Gardens some twenty years ago, but although it is of very easy cultivation and is readily propagated both by division and by means of seeds, which it produces freely, it is still a relatively rare plant.

Of elegant habit, it is very distinct and has smaller flowers than the better-known C. varia, resembling rather those of an Orobus than those of a Coronilla. They are freely produced in umbels on long stalks produced from the axil of every leaf, and maintain a display from June until August, their bright rose colour giving them an attractive appearance. *A. M. W.*

LUPINUS POLYPHYLLUS VAR. MOERHEIMII, AND OTHERS.

It was with pleasure that I read the note by *W.* in your issue of June 29, p. 478, and I cordially agree with what your contributor states regarding the merits of L. p. var. Moerheimii. It is indeed a very fine variety which I have grown for years with ever-increasing pleasure. Another grand Lupin, which was raised by the same firm, Messrs. B. Ruys, of Dedemsvaart, is the variety Princess Juliana. It is dwarfer than the variety Moerheimii, and gives very shapely spikes of light pink and white flowers. It is universally admired in my garden.

Another herbaceous Lupin worth bearing in mind is the variety Lavender Bee, sent out by the noted firm of Messrs. Bees, Ltd. It is of good habit, rather taller than var. Moerheimii, but not much, and produces long, handsome, many-flowered spikes of flowers of lavender and white.

Still taller, also, and with very fine spikes, is the one named Sunbeam, raised by Messrs. Oliver and Hunter in 1924. It has long spikes of pale salmon, and is a very effective border plant. These are not mentioned with any desire to depreciate the magnificent varieties raised by Mr. G. R. Downer and others, but to bring before readers a few from other sorts which are also worthy of inclusion in their gardens. *S. Arnott.*

BULB GARDEN.

ALLIUM NARCISSIFLORUM.

The late Reginald Farrer, in his invaluable work, *The English Rock Garden*, placed this species at the head of the list, describing it as the glory of its race, and undoubtedly it deserves this honour for, although several other species approach it closely in floral grace and colouring, yet none of them possesses the complete charm of A. narcissiflorum, which combines attractiveness of foliage with freedom and ampleness of blossom, and unique colouring; its one drawback is its unwholesome odour—which can be forgiven in an Allium.

A. narcissiflorum is well deserving of a warm, sunny nook on the rock garden in moderately light and well-drained, loamy soil, or in the moraine. It forms a close mass of narrow, grey foliage, among which, during July, arise numerous stout stems to a height of nine or ten inches, each crowned with a drooping cluster of short-pedicelled flowers, varying from a few to six or eight in number. And these flowers are of exquisite form, large, and bright vinous-red or rosy-purple in colour, covered on the exterior with a slight "bloom."

A. narcissiflorum hails from the European Alps and is, apparently, widely distributed, being found in stony screes at high altitudes. Despite this, it responds well to garden culture, asking no special favours in the way of after care, and caring for itself when once planted in a congenial position. *M. W.*

LILIUM PHILADELPHICUM.

Strolling over dryish ground on the outskirts of a wood in early July, I was attracted by several glowing masses of orange-red colour which lit up the recesses of lightly shaded situations. Closer investigation proved these to be the upright flowers of the Wood Lily—Lilium philadelphicum—a species which is common from New England to Ontario and southward to North Carolina. It is a glorious species but, unfortunately (according to Bailey), it does not do so well under cultivation as in the wild.

The stems are from one foot to three feet in length, and bear linear-lanceolate leaves, usually in whorls of from three to eight, but scattered leaves sometimes occur between the whorls. The lower part of the stems is usually devoid of foliage. The apex of the stem terminates in from one to three, or occasionally more, flowers, arranged in umbellate fashion. They are held stiffly erect on pedicels nearly as long as the corolla segments. Each flower is three or four inches in diameter, with the sepals two-and-a-half to three inches long and narrowed to a claw-like base. The segments are quite smooth, the inside being of a rich orange-red hue, tinged with yellow towards the centre, and spotted with maroon or purple markings. The outer side is paler in colour and the anthers are dark red.

A variety known as L. p. var. andinum occurs further west; it is distinguished by the leaves being nearly all scattered and by having larger or more richly-coloured flowers, besides being a stronger grower.

L. philadelphicum possesses no scent, but it is exceedingly attractive in the wild state and would be equally so in the garden, where conditions favour its growth. *T. H. Everett, New York, U.S.A.*

POMADERRIS.

The accompanying photographs (Figs. 31 and 32) are of two New Zealand shrubs that are little grown in this country, viz., Pomaderris elliptica and P. apetala. The genus Pomaderris consists of about twenty species, whose distribution is confined to the Australasian region. Five are found in the northern part of New Zealand, and of these, three are found in Australia also.

As might be expected from their natural habitat, these plants are not hardy in this country; but they are not difficult to grow in a cool greenhouse.

P. elliptica (Fig. 32), called by the Maoris Kumarahou, is a small shrub which may reach four or five feet high, and in New Zealand is a beautiful plant when in full flower. If raised from seeds it may be expected to flower in March of its third year, when about twelve to eighteen inches high. The small, bright yellow flowers, in close clusters, give it a very gay appearance, but its rather dull, greyish foliage, and its awkward habit of growth, prevent it from taking a very high place among ornamental shrubs.

P. apetala (Fig. 31), known to the natives of New Zealand as the Tainui, is a taller and more shapely shrub, which reaches fifteen feet in its native land. In contradistinction to the Kumarahou the foliage of this species is admirable. The leaves are two to four inches long, of a deep but very bright green, and often margined with a creamy variegation. The under surface of the leaf is covered with hairs which are white, except on the prominent ribs, where they are reddish-brown. These hairs well repay examination with a strong lens; for they are then seen to consist of a beautiful series of stars and have somewhat the appearance of a bed of Sea Anemones in miniature.

The Tainui is well worth growing for its foliage, and early in its third year it throws up large, terminal trusses of bloom. But those who expect a glorious reproduction of the brilliant flowers of the Kumarahou will be sadly disappointed when the flowers expand towards the end of April. As the name implies, the flowers have no petals, and the result is an unconvincing mass of dull yellowish-green.

New Zealand plants are ridiculously prone to cross-fertilisation, but, so far, I have not heard of a hybrid between these two species. Could one be obtained which would add to the splendid foliage and the magnificent truss of the Tainui, the brilliant individual flowers of the Kumarahou, it would be glorious indeed.

With regard to P. apetala, the Maoris have an interesting tradition, owing to which they regard this plant with an almost religious veneration. Somewhere about the twelfth century, the Maoris made their great voyage from Hawaiki to take possession of the then uninhabited islands now known as New Zealand. This voyage would be one of nearly 4,000 miles, but for the first 3,000 miles there would be many Islands at which they could stop on the way. This great expedition was made in a fleet of sea-going canoes; each of these consisted of a pair of large dug-out canoes hacked from the trunks of single trees. Each pair was joined by a deck bridging over the space between them; and on this deck would be small deck-houses. Craft of this kind would hardly meet the requirements of the Board of Trade for an ocean journey, but the Maoris were troubled with no regulations.

Now, for the purpose of running these heavy and unwieldy canoes up the shore when landing, each carried a number of rollers made of suitable sections of round-stemmed trees and shrubs. One of the members of this remarkable fleet was named the Tainui, and the rollers carried on this ship were stated to have been sections of the stems of the shrub now known as Pomaderris apetala. When the Tainui reached New Zealand and had been run up the shore, one of these rollers was driven into the soil to be used as a mooring post. Miraculous to relate, this post took root, grew into a flourishing shrub, and became the ancestor of all the shrubs of this kind in New Zealand! Consequently, it was ever after known as Tainui.

So firmly was this tradition held that it was accepted by the early botanists, and the plant was at one time known as Pomaderris Tainui. It is a shame to discredit so picturesque, although unlikely, a story; but later investigations show that, besides the improbability of this thick trunk taking root after its lengthy voyage, there are the following objections against accepting it: (a) No plant of this species is known in any of the Polynesian Islands, or in any of the islands which they touched on the way; (b) in the neighbourhood of the place at which the canoe Tainui is known to have landed in New Zealand this species has not been found, and (c) this species, like 368 other members of the New Zealand flora, is common to both New Zealand and Australia, and Australia was certainly not touched by the canoe Tainui. *A. H. Williams.*

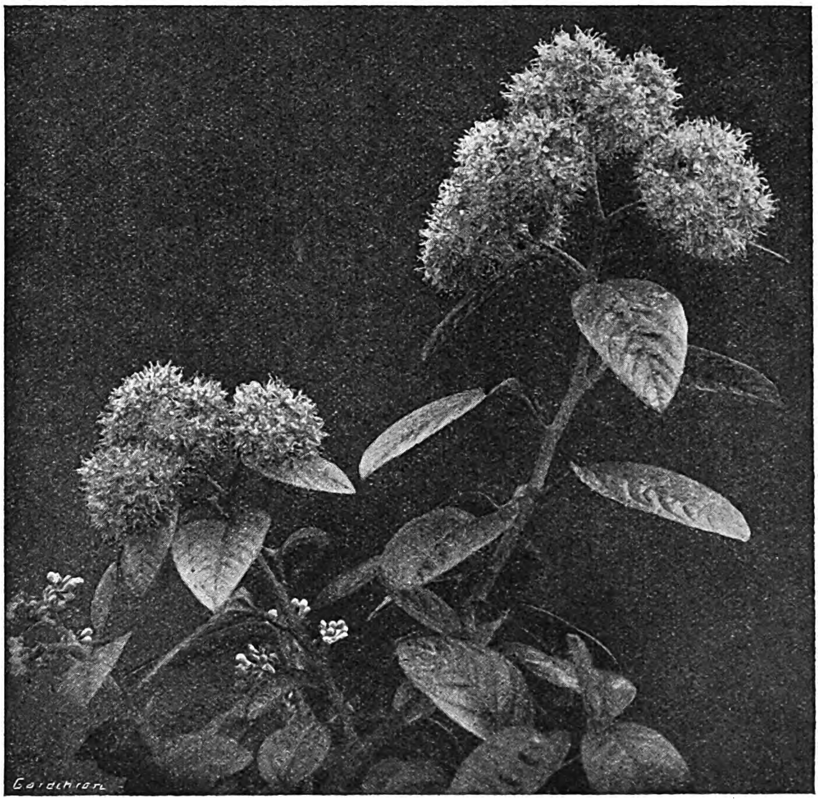


FIG. 32.—POMADERRIS ELLIPTICA.

HARDY FERNERY.

ADIANTUM PEDATUM.

Two species of the genus Adiantum occur in temperate North America, and of these the plant under notice is by far the more common, the other being A. Capillus-veneris, which also occurs in Europe (including Great Britain) and in this country is limited to more southern latitudes than A. pedatum.

The slender, creeping rootstock of A. pedatum is chaffy, and roots along its whole length, sending up dark, polished, chestnut-brown stipes which are dichotomously forked at the summit, the stipes being up to two feet in length. In outline, the frond is obliquely orbicular, the pinnae of which it is composed arising from the upper sides of the two main branches of the stipe, and are disposed in radiate manner. The pinnules are arranged alternately, almost in herring-bone style They are almost oblong with the exception of the terminal one, which is fan-shaped. They are very short-stalked, with the lower margin entire and slightly curved. The inner margin is also entire, while the upper and outer margins are cleft and lobed and bear the linear-oblong sori.

Adiantum pedatum is found in rich, moist woods, being at its best in June and July. Its delicate green colouring and graceful appearance render it an object of admiration when seen in a shady nook in its native home, and not less beautiful is this worthy Fern when given a congenial place in the hardy Fernery, wild garden, or rock garden. *T. H. Everett, New York, U.S.A.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXVI.—THE ALPS AT LAST.

OUR one desire now was to reach the alpine region. Our camp stood on the lip of a gulf, whose mouth narrowed gradually to the deep ravine below Tablekon; at its head, this gulf broadened out into a funnel, bounded by the two arms of Kaso, which met at an obtuse angle below the final peak. The whole funnel head was jammed with forest, and its steep sides were striped with gullies which drained the semi-circular rim and met the apex below to form the Tablekon torrent. Thus we looked straight across the funnel to Kaso, but to reach the mountain we had to go right round the outer rim, following the ridge. Had it been a straightforward climb, we could have reached the alpine region in an hour, from our camp; but the ups and downs of the ridge added miles to the distance, besides robbing us of height, and it turned out to be a good three hours' march to a point on the ridge where we stood clear of the last stunted Larch and Fir trees.

The monsoon had not yet definitely broken, so we decided to celebrate June 4 by a big climb—Buttercup being an old Etonian. We breakfasted at 6 a.m., and by 7.30 were on the way. No time was wasted on the first part of the ascent, and we soon reached the rocks, the next landmark being Buttercup's well. Then came the Water Cliff, whence our supply of drinking water was drawn, reached in thirty-five minutes, followed by the Look Out, Primula Rock, and Isopyrum Cliff. Passing up Gloomy Glen, we reached Calostrotum Ridge, hoping for a view ahead; but by this time clouds had blacked out everything. The open ridge here was covered mainly with scrub Birch and Rhododendrons, among the latter being the pink 'Barbatum,' tawny 'Roylei,' scarlet 'Thomsoni' called 'Coals of Fire II,' gory 'Sanguineum' and plum-coloured 'Brachyanthum.' The gory 'Sanguineum' has very dusky flowers, the colour of dried blood, but there was another rarer species mixed up with it, having much brighter scarlet flowers, and a buff-coloured distemper on the under leaf surface. Mixed up with the Rhododendrons were bushes of Viburnum and an undergrowth of small-leafed Ilex.

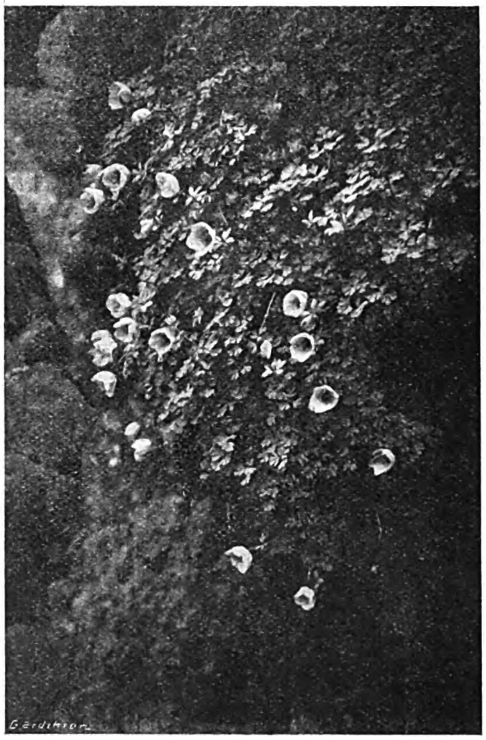

FIG. 33.—ISOPYRUM GRANDIFLORUM, ON THE CLIFF FACE: 11,000 feet altitude.

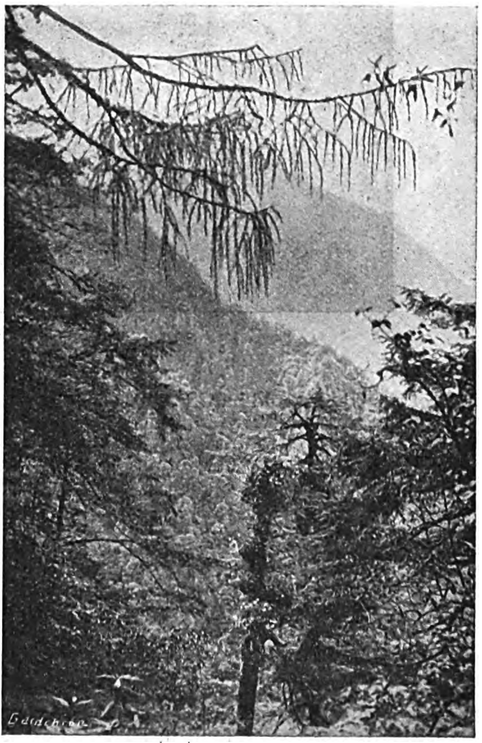

FIG. 34.—CONIFER FOREST AND EPIPHYTIC RHODODENDRONS: 11,000 feet altitude.

A sharp ascent now brought us as it seemed to the verge of the alpine zone, as we tramped over a nodding sea of purple 'Saluenense' Rhododendrons; but all that followed was a long descent through Abies forest, and we tramped on without noticing any material change in the vegetation. Presently, however, the ridge erupted in an outcrop of bare rock, and one side was cut away in a cliff; here we met with our first Primula, a nice-looking yellow-flowered 'Nivalis.' I write 'nice-looking' advisedly; there was nothing at all startling about it. The leaves are strap-shaped, rather leathery, dark green above, silvered beneath; the circular corolla is a good, douce yellow, paler in the centre owing to meal, about an inch in diameter; height twelve to fifteen inches, with three to six flowers in a head. I fancy it is a new species; nor does it look exacting to grow.

Half-a-mile further on we came to another outbreak of alpineness, where grew plants of the 'Denticulata' Primula and Cassiope, and also a pretty, dwarf, bearded Iris. This last is a rhizomatous species and grows in bulky clumps on the steep, alpine turf slopes, but although full of flower, the clumps rarely ripen more than two or three capsules, these being flush with the ground. The flowers, which have the falls prettily mottled and skeined with violet and white, are faintly fragrant. However, this is probably the same species as the one collected in the Seinghku valley in 1926, although that had distinctly purple flowers.

Another ascent brought us at last within sight of the open ridge, and traversing round a bump covered with scrub Rhododendrons, among which we noticed a glorious 'Haematodes,' aflame with big, crimson bells, we reached the alpine zone, and the first patches of snow.

On our right, the ridge dropped very steeply into the funnel, the upper part of which was filled with scrub Rhododendrons; on our left, a gentler slope led down into a series of shallow alpine valleys, mostly filled with snow. Two Rhododendrons instantly attracted our attention. The first was a sulphur-yellow 'Souliei' of the type commonly met with along the rainy alpine ranges from the Tsangpo gorge in Tibet, eastwards to the Burma-Yunnan frontier. 'Yellow Peril,' collected on the Doshong La in 1924, and the sulphur 'Souliei' from the Seinghku valley, 1926, were both of this type, whose chief charm lies in its new foliage which, by autumn, has turned a startling verdigris-green. This 'Souliei' grew all over the place, forming solid seas of yellow on north slopes between the snow channels.

The other conspicuous Rhododendron species was found growing only on the south rim of the funnel, where it formed impenetrable thickets of gnarled and twisted branches. It had small, oval, thick leaves, dark matt-green above, and covered below with what looked like a layer of wet wash-leather. The flowers, borne loosely in trusses of three to six, varied; they were pink in bud, but opened more or less cream, although often retaining a pink glow, and liberally sprinkled with maroon-coloured spots. Both foliage and flowers suggested all I could recollect of R. lanatum, and I am not prepared to deny the possibility of it being that species, until I have had an opportunity to compare them. On the face of it, perhaps, it is unlikely that a Sikkim species should be found so far east; but I have already pointed out that the distribution of individual species, both of Rhododendron and Primula, is wider than was formerly supposed, along narrow belts to north or south of the line of high peaks. The difficulty is, of course, to lay down the exact direction of that line of high peaks! But we were in no difficulty as to how we were situated with regard to it in 1928!

Proceeding along the narrow crest of the ridge over carpets of dwarf and scrub Rhododendrons, chiefly 'Sanguineum' and 'Saluenense' with here and there a mat of 'Rock Rose' (Fig. 35), we halted at 11.30 to eat our lunch, an operation we were forced to hurry through as we found that, meanwhile, the sand flies were lunching off us. The weather was fine, at least, no rain fell, but there was a cold breeze urging the mist up the funnel below us; every now and again, although the clouds would break, and through the rifts, we would get tantalising peeps. We found that we were close to the great north snowfield of Kaso, and evidently it would be some time before all this snow melted and the summer flowers bloomed. I went a little further up the ridge and found 'Scarlet Runner' (Rhododendron repens!) running over the rock ledges in blood-red rivulets, and other dwarf species not yet in bloom; and then slid down a long snow slope into one of the valleys on the north face. The first thing that took my eye here was Primula calthifolia. The leaves were not developed, but the pale yellow flowers were opening bravely on their reddened stems in the bleak desolation. The plant grew in hundreds on the sodden turf and mud slopes on the edge of the snow drifts, where scarcely a blade of green showed, and much which before was obscure now became plain.

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 1929.

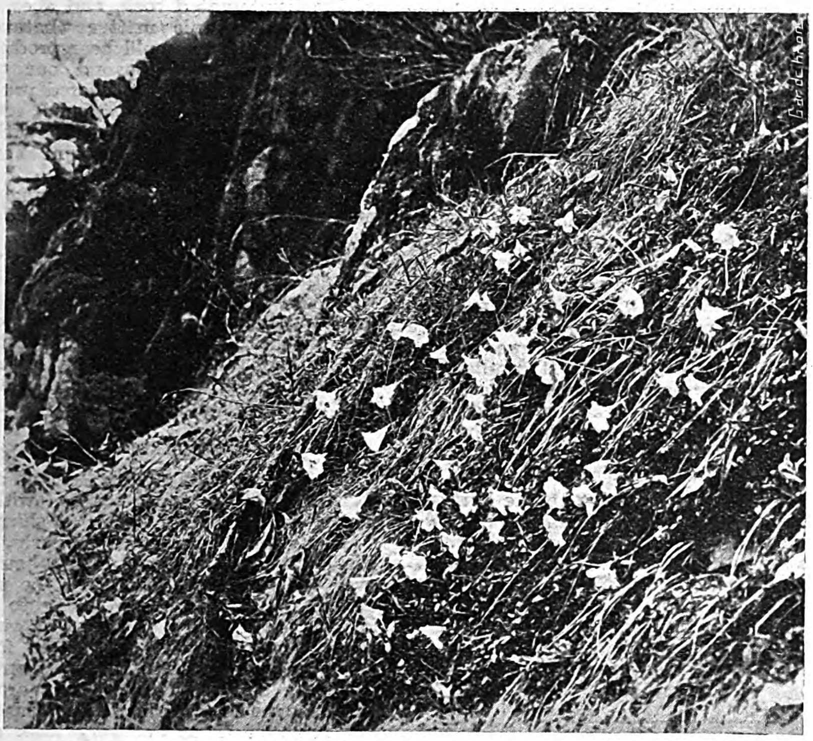

FIG. 35.—A PATCH OF RHODODENDRON ROCK ROSE.

In June, 1926, I found a single clump of a yellow-flowered Primula up a gulley, in the Seinghku valley, which was subsequently named P. calthifolia by Professor Wright Smith, who placed it in the section Petiolaris. So rare was the plant that I collected only a single specimen, intending to get seeds from the two or three specimens remaining. In October, 1926, I returned to the gulley, and at the spot where I had collected P. calthifolia, I found half-a-dozen plants of a Primula in seed, which I naturally supposed was the yellow-flowered species collected in June. It was an obvious 'Nivalis,' with long, strap-shaped leaves, and a long, sausage-shaped capsule, and I was rather surprised when Professor Wright Smith assigned P. calthifolia to section Petiolaris, contending that it was really a 'Nivalis.' Unfortunately, the 'Nivalis' collected in October was also rare, and although I got some seeds of it, I did not preserve a specimen.

There the matter rested until June, 1928. When I saw P. calthifolia again, I recognised it at once, and when it had finished flowering and the coarse leaves had developed, I saw my mistake. The two plants collected in that Seinghku gulley, at almost the same spot, in June and October, 1926, were not the same species, and, therefore, the numbers of P. calthifolia (type) and the seeds assigned to it, do not conform. There were no seeds of P. calthifolia (K.W. 6,897) collected in 1926; conversely, Primula *seeds* K.W. 6,897 were not of P. calthifolia, but a 'Nivalis' species, of which there is no corresponding herbarium specimen. Professor Wright Smith was perfectly correct in assigning P. calthifolia to the Petiolaris section, as my present herbarium material will amply confirm.

On the north slopes, a big fat-headed Rheum was bursting through the mud, Ferns were unwinding their springs, Monkshoods peeping, and other herbs of the alpine meadow preparing to display themselves; the only other Primula in flower here was P. vernicosa, but I noticed P. capitata on a rock, with the white-flowered Androsace geranifolia. From every cliff hung shivering bunches of the dark-flowered Isopyrum grandiflorum (Fig. 33). On the way back it rained, and we reached camp wet and cold after ten hours climbing, with a fair amount of alpine booty. *F. Kingdon Ward.*

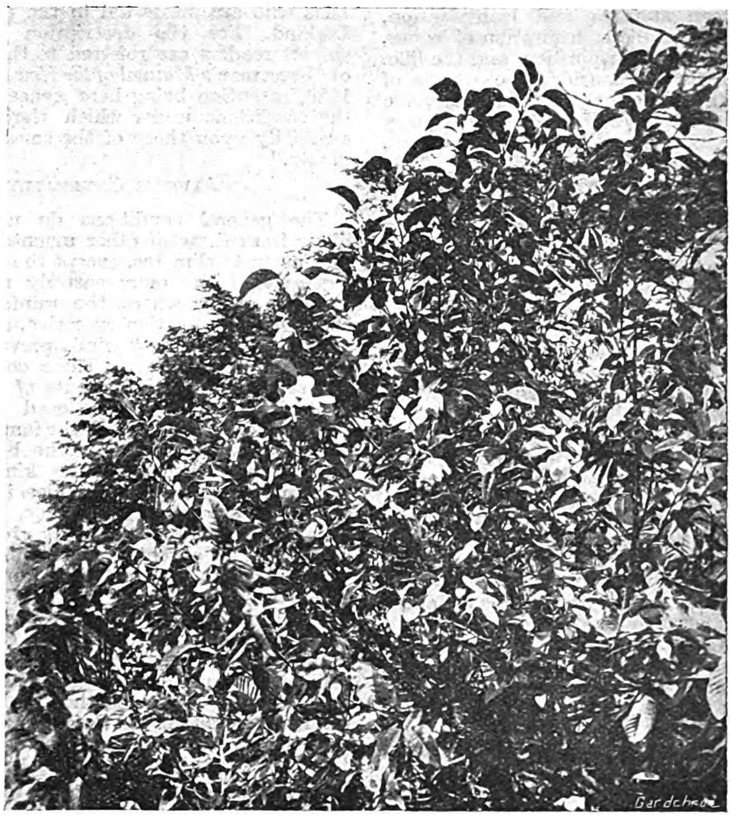

FIG. 36.—MAGNOLIA GLOBOSA IN FLOWER: 9,000 feet altitude.

PROBLEMS OF PLANT LIFE.*

V.—THE SIGNIFICANCE OF WILTING.

WHAT is meant when we say that a plant has wilted? The dictionaries often omit the word, and rarely give a satisfactory definition. We usually think of it as synonymous with withering, fading and decaying, and regard it as a bad sign suggesting drought, malnutrition or disease. But to wilt also means to droop, and drooping may, in reality, be a sign of health and ready response to the conditions in which the plant is found. We may find an analogy in the human system. One hears a good deal to-day about blood pressure. It may be too high or too low, and in either of these cases there may be danger. There are times, however, when the pressure varies in response to circumstances, and this is a sign of health. It is so with the plant which droops when the soil is dry and revives on the application of moisture. Active and passive states and conditions are characterised by a suitable response. In the case of plants, wilting or drooping usually means loss of turgidity due to the water content being low. But from a physiological point of view, this act of wilting may be good, and our present object is to deal with this recent problem in plant life from that standpoint. Our contention is that under certain conditions wilting may be a sign of health, and play an important part in the economy of plant life. Until quite recent years it was assumed that the plant drooped only for want of water, and that the remedy was either to give it a fresh supply, or, if this were impossible, to allow the process of wilting to go on to the bitter end. Even yet our knowledge of the subject is very imperfect. This is, in part, due to the fact that until well into the present century everyone looked on wilting pathologically, and did not observe that it is frequently quite a normal mode of behaviour, a sign of vigorous health, and a spontaneous action of great economic significance in the life of the plant.

Wilting may be defined as a flaccid condition, a loss of turgidity, resulting in an altered appearance of the plant, due to its drooping or modifying the position of its parts. The cause usually is to be found in the low water content or readjustment of the water pressure in response to the environment. It may be transient or permanent, and it may be stated as a general rule that, while permanent wilting is pathological, transient wilting is a sign of health and a spontaneous safeguard against undue evaporation and other exhausting or debilitating processes.

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* Previous studies appeared in our issues of April 13 (p. 279-80), June 15 (p. 446-7), Vol. LXXXV, July 13, (p. 30), and July 20 (p. 50).

Significance has been given to this subject by the fact that the culture of plants often has to be carried out under dry conditions. It is important, therefore, to learn how plants in a state of nature meet their needs in circumstances such as these. The study of desert plants, and such vegetable forms as are able to survive long periods of drought, has taught us that many devices have been adopted, and careful observation has shown that what is known as wilting is one of these. Although the subject has only been studied systematically and scientifically during the present century, the bibliography is already extensive, and the specialist need have no difficulty in finding many excellent memoirs and text-books for his guidance. Viewing the subject historically, we may note that at the close of the last century the study of transpiration received a good deal of attention both at home and abroad. Piche, in 1872, described in French an instrument for measuring evaporation. In 1887, Henslow made a contribution to the study of the relative effects of different parts of the solar spectrum on the transpiration of plants, and Areschoug, about the same time, wrote concerning the influence of climate on the organisation of plants, especially on leaf structure. These and similar researches led to a re-investigation of the stomata—their position, number, structure and action under various stimulating agencies; but the bulk of the work on wilting has been done within the last two decades. The new century has brought new points of view. Thus we find F. Darwin, so long ago as 1898, publishing some observations on stomata, while in 1914-16, he takes up the subject afresh, and writes on the relation between stomata and transpiration, the effect of light on the transpiration of leaves, methods of studying transpiration, and the like.

When we come to consider the causes of wilting in plants we find that they vary. In some instances, even although the soil is sufficiently moist, wilting is seen to follow when a hot, dry wind is blowing. This may be due chiefly to two causes. Either the root system is not sufficiently developed to convey the necessary water to the leaves and thus maintain their turgidity, or the plant is itself unable to conduct the water upwards owing to the nature of the tissues and the shape of the leaves. This is rendered clear by the fact that the parts which first show signs of wilting are those which are furthest removed from the water supply, such as the tips of linear leaves and the margins of the broader kinds. Such wilting, however, is usually temporary. Permanent wilting is more frequently due to soil drought. If a plant cannot obtain water from the ground, or if its supply is unequal to that which is lost by transpiration, wilting ensues. It sometimes happens, however, that both causes are in operation at the same time, and it is under these circumstances that the test is most severe. In dry weather a plant with abundant roots and a good water supply may wilt without suffering, but plants which live in dry soil must have special means of protecting themselves.

Among the means which nature has devised to meet this emergency, three may be specially named. Some plants are able to check the loss of water through transpiration by such means as a deposit of a waxy film over the leaves, a thickened cuticle, or hairs which reflect the light and so reduce the rate of absorption of solar radiation. In the next case, we find succulent plants which have the ability to lay up a store of water, after the fashion of the camel, and thus withstand a long continued drought. Roots, tubers and underground organs so well as leaves and stems,may be utilised as tanks for this purpose. And this leads us to the third and most important means of all, viz., the development of a system which is capable of withstanding the effects of drought, such as one finds in certain Ferns, Lichens, Mosses and allied plants.

To fully understand the bearing of wilting on plant economy it is necessary to know something about the stomata, usually to be found in the under surface of the leaves. These vary greatly in number, size, situation and responsiveness to atmospheric and other influences; and much that is new and instructive has been learned by their intensive study during recent years. Experiment shows that the phenomena of transpiration are extremely complex, and that it is not easy to state what are the conditions which govern those phenomena. Fundamental to all is the water supply. If this is inadequate the plant may wilt in order to reduce transpiration, just as stranded folk with a limited water supply will ration themselves. In other words, wilting is frequently a device for ekeing out the supply of moisture, and so securing a longer lease of life. It results from "an excess of loss over intake of water," the volume of the cells decreasing *pro rata* with the loss of water, and thus causing the loss of turgidity. This reacts on the stomata and reduces the rate of transpiration.

Wilting is, therefore, of value to the horticulturist in that it indicates the condition of the tissues in relation to the water content. It may be a sign of distress, showing that the soil is too dry, or the atmosphere too parching. If placed at once in moist conditions and screened from drying winds, the plant will usually soon recover; but permanent wilting may follow neglect, and this will prove its undoing. *Hilderic Friend.*

ALPINE AND SHINGLE PLANTS OF NEW ZEALAND.

The following account is designed to be of assistance to growers resident in the British Isles who are interested in the plants of New Zealand. For the description of particular species readers are referred to the last edition of Cheeseman's *Manual of the New Zealand Flora*, 1925, attention being here concentrated upon the conditions under which they grow, more especially upon those of the so-called "shingle plants."

Alpines Generally.

The general conditions do not materially differ from those of other mountainous regions in temperate climates, except to some degree in the case of the more easterly ranges of the southern Alps, where the rainfall is scanty, the degree of insolation excessive, and extremely violent, hot, parching winds prevail during the whole of the summer. These conditions have favoured the growth of plants of the mat form generally, and have produced certain quite distinctive plants, of which the famous Vegetable Sheep (Raoulia eximia) is the best known by reputation. This, with the kindred species, R. mammillaris and R. bryoides, is restricted to the drier eastern ranges. Thus, at Mt. Cook, R. eximia occurs on the spurs of the mountain itself, but is absent from the Sealey Range, which is only a mile or two distant on the west. The strong north-west winds deposit nearly all their moisture on the western ranges, and reach the eastern as very dry gales, bringing only occasional sharp showers and flurries of rain or sleet which can be of but little benefit to plant life. This must, then, be considered an essential condition for their growth, and must seriously militate against success in growing them anywhere in the British Isles.

Raoulia eximia, which may be taken as typical of the whole group, including Leucogenes grandiceps (Edelweiss), grows at the altitude of from 4,000 feet to 6,000 feet on dry rocks or rocky faces, especially where the rock is loose or more or less disintegrated. It always prefers sunny situations. The young plant usually appears on the surface of the rock, where it is more or less split, so that the roots are flattened between the two surfaces in a very remarkable manner; as it grows, it forces the rocks asunder and so makes room for its thick, woody stem. The roots run back into the looser material, which consists of the dust and small gravel of the disintegrated rock, and does, of course, contain no organic matter whatever. These edaphic conditions could be reproduced easily, but the insolation is beyond our control, so that success must be considered problematical. Other plants to which this applies are the three species of Haastia, together with Raoulia Youngii (formerly Helichrysum Youngii) and several species of Helichrysum.

Haastia recurva, a very striking and ornamental plant, grows at great altitudes, usually from about 5,000 to over 7,000 feet. It occurs on the top of ridges and among rocks where very few other plants are found. It is a large plant with very numerous roots which are not very long—not much more than one foot. These run down into a gravelly dust much mixed with small stones. It is always fully exposed to sun and wind. The other species of Haastia grow under exactly similar conditions.

The Shingle Plants.

The eastern Alps of New Zealand are characterised by steep slopes covered with detritus, which are generally called "shingle-slides." "shingle-slips," or, more properly, "screes." They extend in altitude from about 2,500 to over 6,000 feet, and represent the pure débris of the upper rocks on its way to the lower levels. They offer a habitat to a very curious assemblage of plants—unique, in fact—which are specially adapted to life in this environment. As many as twenty-five species are reckoned by Cockayne as occurring only in this formation, but some of these are very rare, and some, such as the grass, Poa sclerophylla, would not repay cultivation, except as curiosities. The rock is exclusively greywacke; the stones are always on the move; the situation is always fully exposed to both sun and wind.

The stones are naturally of all sizes, from large boulders down to mere gravel, but the average size of the stones where these plants grow best is from half-an-inch to one inch or two inches in diameter. The top layer is usually from three to four or five inches in depth, and it is very important for the grower to note that if the depth is either much more or much less than this, the plants are not found. Where the substratum lies bare, as often happens when the gradient is too steep for them to find even a temporary lodging, there are no plants of this class at all. And, on the other hand, if they collect too thickly and lie to a depth of, say, one foot, again no plants are to be found. As in the case of the alpines already noted, the dry climate is a necessary condition, and we find "shingle slides" on the more westerly mountains which seem to resemble those of the eastern in every particular, yet have no true shingle plants upon them at all.

Beneath the top layer of stones we find a damp, cold substratum of very closely compacted material to any depth. This material still consists largely of small stones and gravel, but it has a very distinct consistency, and there is always a perfectly clear line of demarcation between the loose stones on top and the more solid material beneath. It is of such hardness that it can be readily dug into with an ordinary strong stick, and offers a fair foothold for the heels of strong boots, if one should wish (or be obliged) to travel upon it. It is evident that both the top layer of loose stones and the substratum of compacted gravel are absolutely necessary conditions for the growth of these plants, but some of them are not quite so particular in these respects as others. I observe that Stellaria Roughii, for instance, frequently manages to find a footing in places where no other species is present, especially where the top layer of stones is deeper than the others can exist in.

How the Shingle Plants Grow.

Ranunculus Haastii may be considered first being one of the most interesting and distinctive of the group, and the one which, in my opinion would best repay cultivation.

This plant has a strong, thick rhizome which lies exactly on the surface of the substratum, so that the stems of the leaves are embedded in the loose stones, and are colourless for the necessary distance. The roots are very thick and very numerous and run out from the rhizome in all directions, but more especially up the hill; they tend to be more or less horizontal at first, and later run right down. The thick, cord-like roots are devoid of rootlets until they near their end. As they are very long, the rootlets are found at a distance of from one to two feet from the rhizome, and they are disposed along the last six inches or so of the root. Thus they penetrate into the wetter and colder parts of the substratum for their sustenance. A very deep supply of stony and closely compacted material would, therefore, seem to be another essential for the successful growing of this plant. It must, of course, be able to withstand a very low degree of temperature, as severe frosts are to be expected before the snow covers the shingle for the winter. The heat which it can withstand must also be very great, for the upper surface of the stones becomes exceedingly hot for long periods in the height of summer.

As is the case with all these plants of the shingle, the individuals grow far apart from one another, never forming anything like a close covering of the surface, but this fact would not seem to have any special significance for the gardener. I notice, however, that when a plant of this particular species is examined closely, it is sometimes found that two have come up together and seem to the eye to form one only. The stones are, naturally, not water-worn, and have very sharp and irregular edges; it would be as well to reproduce this condition in attempting to grow the plants, even although we cannot see that it is necessary or useful to the plant.

Stellaria Roughii, the most widely spread of all this group, is often found at the very bottom of the shingly slopes so well as very high up. As mentioned, it is able to maintain itself under more trying conditions than others of this group, so that it should not prove hard to grow. The roots run in the same manner as those of Ranunculus Haastii, mostly up hill, but they are extremely fine and difficult to extract from the ground without breaking. They are astonishingly long for the size of the plant, which is rarely so much as six inches high, and I have traced them to a distance of over three feet. Like those of the Ranunculus, they are provided with rootlets only towards the end.

Cotula atrata is another very common plant of the shingle. Its manner of growth and rooting are similar to that of the Stellaria, but the roots are not nearly so long.

Lobelia Roughii is a very small plant growing commonly at an elevation of from 3,000 to 6,000 feet. It maintains itself very well where the stones are not lying at all deeply. The roots are rather fine and less numerous than those of Ranunculus Haastii; they run out in all directions to about six or eight inches only.

Notothlaspi rosulatum, generally known as the Penwiper, is a most attractive plant with a delightful perfume, and attempts have been made both in New Zealand and in England to grow it, but, so far as I can learn, without success. It does not only grow on the shingle-slides as here described, but in similar situations, such as stony beds of mountain streams. It differs from the other plants here dealt with in that it has a single tap-root. This root is not very long, a plant about twelve inches high having a root about nine inches long, with the rootlets confined to the last three inches. It holds the ground but feebly, and easily comes away in the hand. It is very unlikely that it can be grown except under the conditions above described. As other plants which grow in its vicinity, and under similar conditions, have been quite successfully established in Sussex gardens, I think it probable that this beautiful subject may yet prove to be amenable to cultivation in England, if as near an approach as possible be made to its natural conditions. Like all the plants here mentioned, it will require all the sun that may be available. *Arnold Wall, Canterbury College, Christchurch, N.Z.*

SOME GARDENING FALLACIES, ANCIENT AND MODERN.

(*Concluded from p.* 52).

In order to avoid purely destructive criticism I would make the suggestion that much benefit would be derived from research in the matter of tools. Suggestions and criticisms should be invited from actual users, and experiments conducted with a view to finding out the best design for each tool and for each set of circumstances. It is not that the problem is difficult of solution, but that in the past it has not been regarded as of sufficient importance for organised research. But its importance is too obvious to need emphasis, and it is doubtful whether the manufacturers of horticultural tools generally are as progressive as the manufacturers of agricultural tools.

Perhaps it may not be out of place to refer to one other fallacy which seems in a singular degree to be directed against the gardener, the fallacy that a man is too old at forty. One has only to follow the advertisements to realise that the boycott of age is not imaginary. A man may be a cabinet minister, an archbishop, a doctor or a lawyer to an advanced age, but the logic that entrusts the morals, lives, and destinies of a nation to the intellects and capabilities of men of seventy and upwards, cannot entrust the care of gardens to men approaching their prime. Why? Undoubtedly the underlying reason is the fallacious argument which is similar to that of the tool makers, that a man's capacity for physical labour declines with advancing years. Like the English tool-maker, the English employer often assumes that brute strength is everything. The more soil that can be got on the spade at once the more will be shifted in a day! The younger the operator the more sustained his efforts, and so on! It may well be asked whether the success of the gardener depends wholly or even chiefly on physical strength. Surely not! There is hardly another profession where the ripe experience, which only comes with years, is of such practical advantage. A good gardener never ceases to learn, and in respect of knowledge his usefulness continually increases with age. The decline of physical vigour in a class of men following such a healthy, outdoor occupation is scarcely appreciable, and is certainly more than balanced by the added efficiency arising from wisdom and experience. The gardener of advancing years asks for nothing more than trial, and judgment by results, but he must continue to assert that pre-judgment by age alone is a fallacy.

It is not an uncommon opinion that the average woman gardener is inferior to the average man gardener, but my experience is that it is only when sheer physical strength is needed that the woman shows any inferiority. In much of the work appertaining to gardening she holds her own easily and often excels in such work as seed-sowing, disbudding, Grape-thinning and floral arrangements, while we must at least give her equal place in her ability to conceive and carry out the many phases of colour-scheme gardening so essential to our craft in these days. And it is good that the young man gardener of to-day should meet this competition, the keenness of which is likely to increase rather than decrease, for we are on the eve of labour mechanisation, and the greatest handicap to the total efficiency of the woman will be largely eliminated.

Finally, it may not be irrelevant to suggest that probably the greatest fallacy of mankind is to imagine that his fellow man is his real enemy. On the surface, this may not appear to be apposite to this article, but no race of men is brought so closely into touch with the potential destruction of pests and diseases and its relation to food production as gardeners. It is largely due to the warning of Sir W. Crookes, in the latter years of the nineteenth century, that there was danger of lack of nitrogen depressing the world's crops and causing starvation, that we may now obtain practically all the nitrogen we want direct from the atmosphere.

Many deep thinkers of the type of Sir W. Crookes believe that the next great war will be between man and the lower organisms. It would be a tragic end to man's existence if, while he is devoting his energy and knowledge to the production of engines for the destruction of his fellow man, he fails to find means of combating these organisms with sufficient energy to prevent his own destruction. *W. Auton.*

THE GENUS PRIMULA.

(*Continued from p.* 49).

PAULIANA (W. W. Sm.). Paul's P.

(Cortusoides-Geranioides).

A beautiful, robust, deciduous, perennial species of tufted habit with minutely hairy leaves six to eight inches long, with orbicular-ovate blades two to three-and-a-half inches long, heart-shaped at the base, borne on distinct, minutely hairy stalks; margins cut into about seven coarsely toothed lobes fringed with minute hairs. Flower stem nine to sixteen inches tall, slender, flexuous, covered with minute down and bearing a long, loose, one-sided raceme of twenty to thirty pale yellow blossoms with orange-coloured eyes and tubes, borne on slender stalks a quarter-of-an-inch to three-eighths-of-an-inch long. Corolla nearly flat, about three-quarters-of-an-inch across, with egg-shaped, notched lobes; tube about half-an-inch long, narrowly cylindrical, with an obscure ring in the throat. Flowers in August and September. In cultivation in 1923.

Grows in open mountain meadows and on the margins of thickets and forests, on the mountains south-east of Yungning, in south-western Szechuan, western China, at 11,000 to 12,000 feet above sea-level.

Culture: Good fibrous loam and leaf-soil, with protection from severe frost and damp in winter, are the conditions indicated.

PAXIANA (Gleig). Pax's P.

(Cortusoides-Geranioides.)

A tall, robust, perennial species with a large tuft of more or less erect, membranous leaves with rounded or kidney-shaped blades so much as six inches across; they are heart-shaped at the base and supported on slender, rounded, slightly downy stalks six to nine inches long; margins divided into seven to twelve short, broadly triangular, pointed lobes which are furnished with small, saw-like teeth; the nerves are sparsely covered with fine down. Flower stem fourteen to seventeen inches tall, slender, sparsely downy, bearing three to four superposed umbels of four to six bluish-lilac blossoms. Corolla about one inch across; lobes egg-shaped, deeply bifid; tube cylindric, about three times as long as the calyx. Introduced in 1909.

Grows in damp, grassy places on a rocky sub-soil, on the Lauschan mountains, near Dongerow, in the province of Kweichau, central China, at about 1,000 feet above sea-level.

Culture; Grow it in a mixture of good fibrous loam and sand, in a cool greenhouse.

PECTINATA (Balf. f.). Plume-leaved P.

(Souliei.)

A charming dwarf sub-species of P. incisa (Fr.), with rosettes of non-mealy leaves three-quarters-of-an-inch to one-and-a-half inch long, with oval or nearly circular blades, abruptly contracted into a stalk equalling the blade in length; margins pinnately incised; teeth oblong, entire, pointed, and fringed with minute hairs; both surfaces clothed with minute, meal-producing hairs, the underside being paler than the upper. Flower stem three to four inches tall, covered with minute, glandular hairs and bearing an umbel of about eight pale blue blossoms on rather long stalks, all facing the same direction on the stem. Corolla about five-eighths-of-an-inch across, with egg-shaped, bilobed segments. Flowers in August.

Grows in damp, rocky situations on the Muli mountains, in south-western Szechuan.

Culture: Good friable loam and grit, and a damp, open spot, are indicated.

PEDEMONTANA (Thomas). Piedmont P.
(Auricula-Erythrodrosum).

This attractive perennial species produces a tuft of narrowly-oval, egg-shaped or oblong-lance-shaped, fleshy, blunt or pointed leaves which gradually taper to a winged stalk, in all from three-quarters-of-an-inch to four inches long; margins entire or toothed, furnished with thick, reddish, glandular hairs; both surfaces nearly smooth. Flower stems three to six inches tall, glandular hairy, bearing an umbel of many rich, rosy-pink, white-eyed or rarely pure white blossoms, on stalks up to five-eighths-of-an-inch long. Corolla three-quarters-of-an-inch to one-and-a-quarter inch across, divided into five broadly heart-shaped, notched lobes; tube longer than the calyx, dilated upwards, covered with reddish, glandular down. Flowers in June and July. Introduced in 1826. *Bot. Mag.*, t. 5,794.

Grows on high, stony alpine ridges and moorlands, in peat, usually on a limestone formation, in the Graian and Cottian Alps.

Culture; Good calcareous loam and peat in a well-drained, open spot suits it; it fails in soil which is water-logged in winter.

PELLUCIDA (Franch.). Pellucid P.
(Malacoides).

This small annual species is probably closely related to P. Forbesii; it produces a weak tuft of intensely green, thin, membranous leaves from one inch to two-and-a-half inches long, including the slender stalk; the blades are oval and sparsely clothed with fine hairs, especially on the nerves beneath; they are heart-shaped at the base and their margins are furnished with rather widely-separated, blunt teeth. Flower stem hairy or smooth, from one inch to five inches tall, bearing one or two superposed umbels of pale, purple-violet or rosy-lilac blossoms, on stalks from three-eights-of-an-inch to three-quarters-of-an-inch long. Corolla three-eighths-of-an-inch to half-an-inch across; lobes broadly heart-shaped, cleft to the middle; tube cylindric, two or three times as long as the calyx. Not in cultivation.

Grows in damp, rocky places near Yunnan-Sen and Tchenfonchan, in Yunnan, western China.

Culture: As for P. Forbesii. *A. W. Darnell.*

(*To be continued*).

NURSERY NOTES.

MESSRS. R. WALLACE AND CO., LTD.

SITUATED on the outskirts of Tunbridge Wells, amid picturesque surroundings, are the nurseries of Messrs. R. Wallace and Co., Ltd., which are very appropriately known as "The Old Gardens." Upon entering the nurseries by the main entrance, on the Tunbridge Wells—Frant Road, the first impression is that of being in a large and old-established garden, rich in specimen trees and shrubs of great antiquity and charmingly laid out, with broad, winding paths edged with borders devoted to all manner of trees and shrubs, many of them rare and not often seen in this country.

The specimen Magnolias, for instance, are exceedingly fine, a tree of M. acuminata being of outstanding stature, while one of the quaintest features of the garden is a grand old tree of Sequoia gigantea var. pendula, which, with many others, was planted by the late Thomas Cripps, the founder of the nurseries. Giant trees of such Conifers as Libocedrus decurrens, Abies bracteata and an attractive pendulous form of Cedrus atlantica var. glauca, add to the charm to the scene, but the chief contributors to the general "long-established" effect are the wonderful bush and standard Rhododendrons, which, at the time of our visit, converted the nurseries into a paradise of colour.

The shrub borders are so designed as to remain attractive throughout the year, flowering and evergreen shrubs and Conifers being skilfully arranged, with here and there standard trees of flowering Cherries and Pyruses, and other subjects, including a good selection of Laburnums, noteworthy among which was L. vulgare var. Alschingeri, a late-flowering and distinct form with deep golden-yellow inflorescences. The specimens of Picea pungens var. Kosteriana and Juniperus chinensis var. Pfitzeriana, were specially interesting, and we also noticed what must be a very ancient specimen of Crataegus Oxycantha var. inermis compacta, very slow and close-growing, and now about six feet high.

The large plants of Liquidambar styraciflua, and the various Maples, must provide brilliant colouring in the autumn, while at the present season the numerous Brooms and Genistas; the various Diervillas, Styrax Obassia, various species of Roses, and many other shrubs, are flowering gaily.

We noticed a grand collection of Cistuses, while behind the shrub borders were large beds of various Conifers, standard Roses, ornamental Vines, American Thorns and ornamental flowering trees.

As stated, the Rhododendrons were the chief source of attraction, the "Rhododendron Drive," about a quarter-of-a-mile in length and forming an avenue of large standard trees of many grand old hybrids, with bushes of innumerable varieties and spaces beneath them, being a grand feature of the nurseries. Messrs. R. Wallace and Co. would appear to have a very extensive collection of species of Rhododendron, including many recent introductions by Farrer, Forrest and Kingdon Ward, and although, of course, these latter have not yet attained great size, many interesting plants were observed among them. Of the numerous species seen, mention may be made of R. muliense, R. coccinopeplum, R. yungningense and R. Wardii, R. Souliei, the low-growing R. kamtschaticum, and such large-leafed sorts as R. sino-grande, R. ficto-lacteum and R. Hodgsonii, with a host of the small-leafed, dwarf sorts, of the R. intricatum type. Very special species, of which we saw grand specimens, were R. Williamsianum, R. repens and R. orbiculare, the last-named belonging to the 'Thomsoni' series.

The hybrid Rhododendrons were legion. There were beds of many of the newer sorts, including Betty Wormald, with large, rich rose-coloured trusses of blooms; Hugh Wormald, cerise, with white stripes; Mrs. Lindsay Smith, a lovely pure-white variety; Sensation, white, flushed with rosy-lavender; and Kathleen Wallace, a grand late-flowering hybrid with lovely trusses of bright, glowing pink flowers.

The land to the left of the drive is devoted to various collections of shrubs and trees, such as Birches, Tilias, Crataegus, Azaleas, Maples, both American and Japanese, for which this firm is far-famed; Elms, among which Ulmus parvifolia was especially noteworthy; various Willows, including the lovely Salix magnifica; Magnolias, Deutzias, Philadelphuses and Diervillas. A very ancient specimen of the variegated form of the Tulip Tree, Liriodendron Tulipifera, is to be seen in this section, other good specimens being of the uncommon Maackia americana, and the American Red Oak, while we also admired some vigorous young plants of the much sought Davidia involucrata.

The shapely specimens of Japanese Maples—A. palmatum var. dissectum rubrum, together with the forms purpureum and palmatifidum—were also of special interest here, being richly coloured mounds quite six feet high, and wonderfully symmetrical in outline. There was also a unique collection of Barberries, both evergreen and deciduous, red-fruited sorts, the latter including such wonderful hybrids as B. rubrostilla, B. Autumn Beauty, B. Coral, B. Autumn Cheer, and several others, all of which originated at Wisley.

The collection of Olearias was also very interesting, a grand specimen plant of the uncommon O. virgata being noted, its slender growths having passed through last winter unscathed.

To the right of the Rhododendron Drive the ground rises, and from the summit is obtained a grand view of Tunbridge Wells and the Weald of Kent. In this section of the nurseries are yet other collections of shrubs, together with herbaceous and alpine plants, Liliums and other subjects.

There are large plantations of standard ornamental Apples and Plums, etc., various forms of Pyrus Aria, including the lovely variety lutescens and P. pinnatifolia var. Gibbsii, of comparatively recent introduction. Among the Sorbuses of note were Pyrus Vilmorinii, a free-fruiting Chinese species with very attractive foliage; P. Aucuparia var. discolor; P. rufo-ferruginea, of very graceful habit, and a valuable subject for autumn effect, its foliage taking on rich and varied tints, and P. pohuashanensis, a species from northern China, closely related to P. Aucuparia.

Messrs. R. Wallace and Co., Ltd., are famous throughout the world as purveyors of Irises and of Liliums, of both of which they have very representative collections; in fact, they would appear to have very comprehensive collections of every type of herbaceous and alpine plant, although space will not permit their enumeration on this occasion. A day is insufficient for the visitor to become acquainted with all the plants grown in these beautiful nurseries, but sufficient was seen during our short visit to convince us of the enormous variety of hardy plants, and especially of Rhododendrons, grown by this famous firm, and seldom have we seen so clean and well-cultivated a nursery, or such a grand collection of rare subjects.

FRUIT GARDEN.

SUMMER-PRUNING BUSH FRUITS.

MOST of the Black Currant fruits have now been gathered, except those on bushes growing in cool situations, or on those with a northern aspect. The bushes should be looked over, and much of the pruning necessary may be accomplished now, thus saving such work during the winter season. This pruning applies chiefly to the old and established bushes, as younger stock will require little pruning beyond the cutting out of the weakest branches that are inclined to hang too low. With the older bushes, however, the objects in pruning are to remove, or shorten, all the oldest wood that has fruited, and to retain so much of the young wood as possible, without undue crowding. This thinning will permit all the light and air to reach and ripen the young shoots on which are obtained the finest fruits each year. The crops here, this year, have been clean and excellent in every way. The variety Boskoop Giant is par excellence as an early jam variety, and is followed by Seabrook's Black, Goliath and Baldwin, in order of ripening.

Red and White Currants also are greatly benefited by summer pruning, and with these it is not necessary that the crop should first be cleared. The bushes should be gone over with a pair of secateurs, and all lateral growths not required for rejuvenating purposes should be cut back to four or five leaves from the base, and the leaders, or extension shoots, to ten or twelve inches. This shortening of the shoots improves the size and quality of the fruits hanging, and the basal buds are "plumped up" and ripened by the concentration of food, and the additional light and air. Those who have not grown Laxton's Perfection Red Currant should give it a trial. It bears a very heavy crop of fruits of the largest size, and produces bunches three to four inches in length, with as many as twenty-six fruits in each.

Gooseberries should be pruned in the same way as the Red Currants. This seems to be absolutely necessary in the case of bushes up to the age of six or eight years, especially if they are growing in fairly rich soil. The growths on these young bushes are usually so strong that a great many snap off at the base, causing the bushes to become one-sided and badly shaped. This is particularly annoying in the case of the main leader shoots. These should be shortened slightly so that they can withstand the strain. All lateral growths should be cut back to four or five leaves, any well-situated shoots on these main branches being reserved, where space permits, to replace the old ones as time goes on. This is essential in varieties with a pendulous habit. *H. H. Cook, Reading University Horticultural College.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

A Spineless Thistle.—The above title might be applied to Cnicus montanus, more often named Cirsium montanum on the Continent, for the few small bristles on the margins of the leaves do not feel prickly to the fingers. The involucral leaves surrounding the flower-heads also feel soft to the touch. The heads themselves are deep purple, and borne in a cluster of three to six at the top of stems about four feet high. Among all the species of Thistle that have been introduced to this country at different times, I cannot find any reference to its introduction, although it has found its way into some private gardens. I had a specimen of it from Mr. F. J. Hanbury, Brockhurst, East Grinstead. In Europe, it grows in woods and ravines in the Lower Alps, the Maritime Alps, the Tirol, Liguria, Croatia and Transylvania. As a garden plant it could be grown in the herbaceous border, while its ample leaves would make it suitable for the wild garden. The flowers of these Thistles are mostly scented, the mild, musky odour being agreeable, rather than otherwise. *J. Fraser.*

Flowering of Actinidia chinensis.—In view of the correspondence occurring on pages 208, 307 and 487 (of *The Gardeners' Chronicle*, Vol. LXXXIV (1928)), with reference to the flowering of this climber, the enclosed blossoms are interesting. They were taken from a plant growing on a pergola at the Municipal Gardens, York House, Twickenham, and, as far as the oldest employee remembers, this is the first occasion this plant, although established for a long period, has produced flowers. Annual spurring back may have been responsible for its failure to flower hitherto, although some writers appear to recommend this treatment. It is interesting, however, that in this case no pruning has taken place for a period of three or more years. Another specimen growing against a wall, and enjoying the same aspect and soil conditions, but annually spurred, shows no sign of flowering. This Actinidia is a climber of exceptional beauty, and when fully established is very free-growing the finely-pointed tips of the young shoots being densely covered with a conspicuous mass of red hairs, which, together with the rich, elegantly-formed foliage, makes it a subject of prominence and great merit. *H. G. King, Twickenham.*

Nurserymen's Descriptions of Flowers.—I think that gardeners, professional and otherwise, have a very just cause of complaint against nurserymen and seedsmen for their descriptions of the colours of plants. The descriptions often are so exaggerated that it is really laughable, and sometimes disastrous for the poor gardener, if he has any child-like faith left in him in reference to colour and seedsmen. A gardener may wake on a sunny morning with the thought that his bed of Petunia Crimson Scarlet should be looking well. What does he find ? A bed of black flowers, for all practical purposes ! Then he tries with Silene Scarlet, for a bordering plant. It looks so neat and charming that he feels sure he has got a real gem as an edging to a bed of small-flowered scarlet Begonias ! It flowers—with sad results ! All the same, the Silene is a beautiful little plant in the right place. *Samares.*

Lonicera nitida.—In *The Gardeners' Chronicle* of September 24, 1927, appeared a note on this species by *A. O.*, who referred to the yellow flowers and blue berries, and I shall be glad if he can give any hints as to soil and treatment to ensure flowering and fruiting, because, although this shrub is grown commonly about here for hedges, etc., everyone I have asked seems never to have seen it in flower, although in some cases it is in bush form six feet or more in height. Mr. J. Fraser suggests that possibly it requires more sun than is generally available in this country ! If that be so, then this year, with its abnormal allowance, should be favourable. Will any reader who successfully flowers and fruits it, give us the benefit of his advice as to treatment ? Probably severe clipping is undesirable. *C. Nicholson.*

SOCIETIES.

WOLVERHAMPTON FLORAL FÊTE.

This annual flower show and fête is now very largely in the hands of the Corporation, and has thus been saved from the extinction that threatened it after the appalling wet weather experienced during the function of two years ago. Many additional attractions are now offered, including a military tattoo during the evening.

The exhibition held in West Park on July 16, 17 and 18 was the largest and best we have seen at Wolverhampton, and certain enthusiastic members of the Committee stated that it occupied more space than the Southport Show. Trade displays were unusually numerous and extensive, and the largest tent was filled with them, two very notable displays being the gardens and floral designs exhibited by Messrs. Bakers and Messrs. Knight.

Competition was, on the whole, keen, and there was such a rush of entries just before the books were closed that two extra tents had to be provided. This threw a good deal of extra work upon the judges, few of whom finished their task before 1.30. If the extent of the fête is maintained or increased, the management should seriously consider the appointment of more judges and an earlier hour for them to commence their duties. A minor matter is the time of the luncheon ; on this occasion it commenced about forty minutes after the time stated, with the result that several visitors who had long journeys before them and had to leave the grounds by two o'clock, were unable to take full advantage of the hospitality that had been offered them.

Groups and Plants.

There was a falling off in the big group classes, the competition being confined to Sir G. H. Kenrick (gr. Mr. J. Macdonald), Whetstone, Birmingham, and Messrs. Jas. Cypher and Sons, Cheltenham. The former won first prize for a miscellaneous group, artistically displayed on a space twenty-eight feet by twelve feet, with an elegant display wherein Palms, Codiaeums, Ferns, foliage Begonias and Humea elegans were associated in pleasing fashion, and such bold flowering plants as Fuchsias, Liliums, Francoa ramosa, Thunias, Oncidiums and Cattleyas. Messrs. Jas. Cypher and Sons received second prize, but in the class for a display of ornamental foliage plants arranged on a space of two hundred square feet, the Cheltenham firm beat Sir G. H. Kenrick, with a very fine contribution in which the leading features were Caladiums, Codiaeums, Palms, foliage Begonias, Alocasias, Nandina domestica, Dracaenas, Ferns and Asparagus. Mr. Macdonald's second prize group was, of course, a thoroughly praiseworthy exhibit by this veteran and clever grower.

J. L. Swanson, Esq., showed the best amateur's group of plants and made a fine display with Humeas, Calceolaria Clibrani, Codiaeums, Nandinas, Liliums and Francoa ramosa, and an edging of Nertera depressa ; second, G. Mason, Esq. (gr. Mr. Clark) ; third, P. Jones. Esq.

J. L. Swanson, Esq., won first prize for a collection of decorative plants and cut flowers, arranged for effect on a space six feet by four feet ; he used Lilium Henryi, Carnations, Codiaeums and Begonias skilfully ; second, F. E. Sankey, Esq., who staged Francoas, Carnations, Clarkias and Statice Suworowii.

In the class for a group of one kind of flowering plant, F. E. Sankey, Esq., led with Heliotropes, followed by Sir Charles Fenn (gr. Mr. Ratcliffe), Kingswinford, with Francoa ramosa.

Messrs. Jas. Cypher and Sons led for fifteen plants in pots, with a bright and attractive set.

Major S. J. Thomson exhibited the best dozen flowering plants of one kind in the amateurs' section, winning with fine Begonias ; second, G. Mason, Esq., also with Begonias ; third, F. F. Sharpe, Esq. (gr. Mr. Cotton), with Fuchsias.

The class for a group of Fuchsias was well filled, and as Fuchsias are again becoming popular, the class proved very interesting. First prize was won by Messrs. Ramsbotham and Co., Bletchley, with neat plants of Amy Lye, Bluebell, Jock French, Favourite, etc. ; second, Mr. F. F. Sharpe ; third, Mr. F. E. Sankey.

Tuberous-rooted Begonias were shown splendidly, and the several competitors in the class for a group arranged on a table space of twenty feet by four feet produced a fine bank of colour. The Challenge Trophy presented by Messrs. Blackmore and Langdon was won by Major S. J. Thompson (gr. Mr. J. White), Oaken, with a display of finely grown plants that would have been a credit to the donors of the Cup ; double and single varieties, and pendant sorts in hanging baskets, were all splendidly grown ; second, Alderman A. B. Bantock (gr. Mr. M. Woodham) ; third, J. L. Swanson, Esq.

Roses.

Roses soon felt the effects of the bright sunshine and heat. Messrs. Gunn and Son had the finest collection of cut Roses, and produced a striking effect with pillars, baskets and vases of Mabel Morse, Gwenneth Jones, Lady Inchiquin, Golden Emblem, Doris Trayler, Desmond Johnson, Betty Uprichard, and other fine varieties ; second, Messrs. W. Lowe and Son ; third, Mr. Elisha J. Hicks ; fourth, Messrs. Horton Brothers.

In another class for a smaller collection, Mr. M. Townsend was the leading prize-winner, and showed fine examples of Mabel Morse, W. H. Drew, Los Angeles and Mrs. Henry Morse ; second, Mr. Charles Gregory ; third, Mr. J. Mattock.

Mr. George Prince led for nine perpetual-flowering Roses, and the Donard Nursery Co., led for six Roses, three blooms of each. Mr. C. Gregory showed the best eighteen Roses.

Dowty's Rosery, Wolverhampton, contributed a goodly collection of Roses, winning first prize with capital flowers of Angele Pernet, Hortulanus Buddé, Mrs. Henry Morse, Mrs. H. Stevens, Mrs. Barraclough and other notable varieties ; second, Mr. G. Prince ; third, Mr. J. Mattock.

C. B. Worsey, Esq. (gr. Mr. A. Davis), and Jarratt Thorpe, Esq., were successful amateur exhibitors of Roses.

Hardy Flowers.

Messrs. Bees, Ltd., secured first prize for an arrangement of hardy flowers, with one of their splendid displays wherein a few of the best kinds were Lilium pardalinum, L. regale, L. Henryi, Centaurea macrocephala, and various Delphiniums and Phloxes. Mr. D. Green scored for Antirrhinums, followed in order by F. E. Sankey, Esq. (gr. Mr. R. Maybury), Wolverhampton ; and Mr. P. Adams ; all showed well.

Messrs. Bees, Ltd., were easily first prize-winners in the class for a collection of Delphiniums, and their spikes were in fine condition, despite the weather ; theirs was a grand exhibit of varieties of this popular flower, and it covered a space twenty-four feet by eight feet ; second, Messrs. Hewitt, Ltd.

Mr. L. E. Holland, had the best half-a-dozen bunches of hardy flowers and also the best three bunches of old-fashioned flowers, showing Antirrhinums, Larkspurs and Poppies. Mr. G. H. Brookshaw, Crewe, led for annual flowers ; second, Mr. W. J. Robinson, Banbury.

Sweet Peas and Carnations.

The best set of bouquets or baskets of Sweet Peas was the one arranged by Davis Green, Esq. (gr. Mr. W. Thorneycroft), whose Gleneagles, Hero, Olympia and Magnet were particularly good ; second, Mr. G. H. Brookshaw, Crewe ; third, Mrs. N. N. Richards (gr. Mr. Horton), Denbigh.

Mr. F. Tennant, Clent, and Mr. S. Roberts, Finchford, and Mr. F. Marsden, won prizes for Sweet Peas in the amateurs' classes.

Jarratt Thorpe, Esq. (gr. Mr. Bircher), Hucclecote, Gloucester, showed the best set of twelve varieties of Sweet Peas, and Mr. J. Robeson, Banbury, won second prize. Mr. J. Thorpe also won first prize for a display of Sweet Peas, with Mr. J. Stevenson, second. Sir R. Baker (gr. Mr. A. E. Usher), Ranston, Blandford, had a very fine collection of Sweet Peas that included Gold Crest, Pinkie, Southport, What Joy, Mammoth, R. Felton, Powerscourt, Magnet and Model; second, Mr. A. Challoner, Balterley, Crewe.

Mr. Charles Wall contributed the finest display of Carnations, and included in his group excellent flowers of Laddie, Topsy, Spectrum and Saffron; second, Messrs. C. Engelmann, Ltd. Mr. Charles White was the most successful exhibitor of border Carnations and Picotees, followed by S. Pye, Esq. (gr. Mr. Holmes), Garstang; and Mr. A. Reynolds.

Table Decorations.

Sir E. H. Kenrick won first prize for a table decoration, in the open section, with a charming arrangement of Gloriosas, Oncidiums and Epidendrums; second, Mr. A. A. Yates, Warwick; third, J. L. Swanson, Esq. (gr. Mr. F. W. Cosling), Wolverhampton.

In the amateurs' class for a table decoration, Mrs. Q. W. Hosier, Willenhall, led with a design in Madame Butterfly Roses; second, Mrs. A. E. Reeves, Walsall, with Golden Ophelia Roses; third, Mrs. H. Hands, Bridgenorth.

Vegetables.

H. S. Pitt, Esq. (gr. Mr. J. Cook), Kingswinford, won the first of Messrs. E. Webb and Sons' prizes for a collection of eight distinct kinds of vegetables with well-grown examples of Potatos, Onions, Peas, Carrots, Cucumbers, Cauliflowers, Tomatos and French Beans; second, A. H. Hickman, Esq. (gr. Mr. J. Parker), Cookley; third, Mrs. P. Adams (gr. Mr. Pugh), Kidderminster.

Medal Awards.

Large Gold Medal and Silver Challenge Trophy.—For the best non-competitive exhibit in the show. To Messrs. Bakers, Wolverhampton, for formal garden, rock garden and floral designs.

Large Gold Medal and Special Cultural Commendation.—To Lord Leconfield (gr. Mr. Streeter), Petworth, for a collection of vegetables.

Large Gold Medals.—To Messrs. Sutton and Sons, for a display of Sweet Peas; Messrs. E. Webb and Son, for a group of flowers, fruits and vegetables: Mr. Thomas Robinson, for Roses; Messrs. Knight, for a sunk garden; and to Messrs. Blackmore and Langdon, for Begonias and Delphiniums.

Gold Medal.—To the Wolverhampton Corporation, for a group of plants.

Silver-gilt Medals.—To Messrs. Murrell, Shrewsbury, for Roses; Messrs. Toogood and Son, for flowers and fruits; and to Messrs. Dobbie and Co., for Roses.

Silver Medals.—To Messrs. P. and F. Smith, Ltd., for a rock garden; Messrs. Isaac House and Son, for Scabious; Messrs. T. Grove and Son, for hardy flowers; Messrs. Maxwell and Beale, for hardy and alpine plants; Mr. H. Ellison, for Ferns; and to Messrs. Jarman and Co., for hardy flowers.

BRITISH CARNATION.

July 18 and 19.—For the second successive year, the British Carnation Society and the National Carnation and Picotee Society joined forces and held a combined show at Westminster. It was hoped that the new Horticultural Hall would have been filled entirely with Carnations and allied flowers, but while this hope was not materialised, there was a very attractive show. The arrangements were well conceived and the first impression—always an important matter—was admirable. Immediately on entering the hall, the visitor saw a most magnificent group of Carnations, and was enveloped with their delicious fragrance. In both sections the quality of the blooms reached a high standard of excellence, but there is room for more exhibitors in most classes, although there was a welcome revival in the class for growing plants in pots, in which four admirable collections were arranged. The trade members ably supported the show, and their handsome collections were of immense value. The various arrangements under the two enthusiastic new Hon. Secretaries, Mr. F. W. Alesworth and Mr. A. E. Amos, worked smoothly and well.

Trade Classes.

The nine varieties in competition for the right to hold the *Daily Mail* Challenge Cup for a year were set out in the dais. The Cup is offered for the best-scented Carnation not in commerce prior to 1927. The Cup was rightly awarded to the pale pink Mavis, shown by Messrs. Walter Hemus, Ltd., which won the Cup two years ago. It is a well-formed, serrated bloom of most delicious fragrance. Other varieties in the competition included Guy Allwood, a sweetly scented pink variety, shown by Messrs. Allwood Bros.; G. F. Phillips, fragrant, deep crimson, shown by Messrs. Hewitts; Dorcas, a medium-sized, compactly-formed, sweet, rich crimson variety, shown by Messrs. C. Engelmann, Ltd.; Sonny Boy, rose pink and of fair fragrance, shown by Mr. A. F. Dutton; and Fragrance, a small scarlet, fragrant flower, also shown by Mr. A. F. Dutton.

Only Messrs. C. Engelmann, Ltd., staged twenty-five blooms each of seven distinct varieties, but this was a magnificent exhibit and fully deserved the first prize. The varieties were Brilliant, Saffron, Master M. Stoop, Hebe, Blanche, Sunny and Topsy. The first prize for three vases, twelve blooms in each, of British novelties, was shown by Messrs. Allwood Bros., who staged exceedingly good blooms of Brilliant, Rapture and Guy Allwood. Messrs. C. Engelmann, Ltd., were a good second. In the class for twenty-five blooms of Spectrum, the positions were reversed, and Messrs. C. Engelmann, Ltd., won the American Carnation Society's Cup with splendid blooms.

There were five superb exhibits of a vase containing not fewer than one hundred blooms of any one variety, and here Messrs. C. Engelmann, Ltd., were first with an excellent vase of Laddie; and Messrs. Walter Hemus, Ltd., were second, with Dora. Showing Laddie, Red Laddie, Topsy and Blanche, of high quality, Messrs. C. Engelmann, Ltd., were first in the class for a vase of fifty blooms in four varieties, and Messrs. Allwood Bros. were a good second. The best twenty-five blooms of a British-raised variety were those of Pink Seedling, shown by Messrs. Allwood Bros., while Startler, shown by Messrs. C. Engelmann, Ltd., must have been a close second. Topsy, staged by Messrs. C. Engelmann, Ltd., was the best fragrant crimson variety.

The colour classes were of interest and value as showing the best exhibition varieties in the various sections. Showing Sunny, Laddie and Red Laddie, Messrs. C. Engelmann, Ltd., were first in the class for twenty-five blooms, each of distinct colours. White Pearl, shown by Messrs. Allwood Bros., was the best white Carnation, and Messrs. C. Engelmann, Ltd., were second with the same variety, and their first prize flowers of Laddie in the class for a light pink variety were distinctly the finest blooms in the show. Mary Allwood was shown both by Messrs. Allwood Bros. and Messrs. C. Engelmann, Ltd., in the class for a medium pink variety. Master M. Stoop, shown by Messrs. C. Engelmann, Ltd., was the best deep pink, and Red Laddie, of superb quality, and by the same exhibitors, was the best red Carnation. Topsy, shown by Mr. H. T. Mason, who was first, and by Messrs. C. Engelmann, Ltd., who were second, was the best variety of its class. Wivelsfield Claret Improved, shown by Messrs. Allwood Bros., was the best purple or mauve variety, and the same exhibitors were first with Wivelsfield Buttercup in the class for a yellow or yellow Fancy variety. Chintz, shown by Messrs. C. Engelmann, Ltd., was the best Fancy Carnation other than yellow, and Coral Glow, by the same exhibitors, was first in the class for twenty-five blooms of Carnations of apricot and yellow shades.

Amateurs' Classes.

The four exhibits of twelve plants of perpetual-flowering Carnations were all highly creditable to the growers and made a very attractive feature of the show. The first prize was won by Lord Woolavington (gr. Mr. E. W. Fuller), Lavington Park, Petworth, whose splendid plants were of Eileen Low, Topsy, Lady Hindlip, Mary Allwood and Saffron. Lady Emsley Carr (gr. Mr. J. Doe), Wonford, Walton-on-the-Hill, showing fine plants of Lady Hindlip and Philip Sassoon, was a worthy second, and Mr. William Holder, New Lodge Clinic, Windsor, was third, with plants which at some former shows would have won the first prize.

The three decorative arrangements of cut Carnations also were of high quality. Lady Emsley Carr was first with a handsome display which included Philip Sassoon, Lady Hindlip and Red Ensign, of high quality. E. Martin Smith, Esq. (gr. Mr. G. J. Miller), Codicote Lodge, Welwyn, was a good second, and Lady Brodie Henderson (gr. Mr. W. Eggleton), Epping House, Hertford, was third. Mr. W. Holder won the Stuart Low Challenge Cup with a splendid vase of Carnations.

Lady Melchett, D.B.E., Melchet Court, Romsey, who staged good rose, cerise, yellow, scarlet and Fancy seedlings, was first in the class for seedlings raised and grown by the exhibitor. Mr. Henry Atkins won first prizes for a decorative vase of not more than twenty-five blooms, with Laddie, in the light pink class; and White Pearl, Topsy and Maine Sunshine in the colour classes. First prizes in these classes were also won by the Hon. George Herbert, Knowle House, Salisbury, with Master M. Stoop and Red Laddie; Lady Melchett, with Mrs. H. Fellowes; E. Martin Smith, Esq., with Iona, and a vase of mixed Fancy varieties. F. V. Wharmby, Esq., Thornton Heath, and W. E. Tucker, Esq., Bournemouth, were the most successful exhibitors in the classes for amateurs who do not employ a full-time gardener.

In the decorative classes the amateur exhibitors clearly outshone the professionals, whose exhibits were mostly heavy and massive. The first prize dinner table decoration of Carnations was arranged by Miss M. Woolven, Wadlands, East Grinstead, who used Fancy shaded varieties very effectively. J. G. Miller, Esq., was second. Both Mrs. A. Swann, Haywards Heath, and Miss Woolven, who were first and second, respectively, in the class for a dinner table decoration of Dianthus Allwoodii used the variety Sylvia very tastefully. Mr. William Holder was first with a well arranged bowl of Carnations, and Mrs. Swann was first with a bowl of Dianthus Allwoodii. The baskets of Carnations were especially successful, and Miss Woolven was first with a delightful arrangement of Spectrum and Croton leaves.

In the Florists' Section, Messrs. Selfridge were first in the dinner table decoration class, and Messrs. Robert Green, Ltd., won the other first prizes. As we have stated, the arrangements were inferior generally to those of the amateurs; the exception was a bowl of red cerise Carnations and yellow Croton leaves, arranged by Messrs. Robert Green, Ltd., which was of considerable artistic merit.

The classes for pots or pans of Rock Dianthi did not appear to bring any exhibit. R. Chetwynd Stapleton, Esq., Headlands, Berkhamstead, who showed Rhodo, Barbara and Nora, was first for six vases of Pinks and Hybrid Pinks. Lady Brodie Henderson was first with three vases. Mr. Henry Atkins was first with a vase of Malmaisons, and E. Martin Smith, Esq., was first with Sweet Williams and seedling Carnations.

There were five boxes of Carnations in the class arranged to test their travelling and keeping qualities. The boxes were sent by post to the secretary at the hall where they were opened and flowers were placed in water. The judging took place on the following day when the W. E. Wallace Cup and first prize were awarded to Messrs C. Engelmann, Ltd., for their box of Laddie.

Non-Competitive Exhibits.

A magnificent display of first-rate Carnations was made by Messrs. C. Engelmann, Ltd. Their group was composed of baskets and ornamental jars, which contained all the best market varieties, and it was arranged with consummate taste and skill. The raised baskets were filled with such varieties as Brilliant, Rouge and Master M. Stoop, while at the corners there were jars of Cupid, Saffron, Mab and Canadian Pink. Other varieties which helped to make this memorable display were Madge, Nero, and Sheila Greer, of the Fancy varieties, Red Laddie and Mrs. Walter Hemus.

In a tasteful oblong group of fine Carnations, Messrs. Allwood Bros. included very good vases of the Malmaison varieties Princess of Wales and Old Blush, which were deliciously fragrant. Their perpetual-flowering varieties embraced Guy Allwood, Mary Allwood, Buttercup, Shot Silk, Mrs. E. W. Ward, Edmund Allwood, Topsy, Triumph and Spectrum.

On a wall space, Messrs. Keith Luxford and Co. had a collection of perpetual-flowering Carnations which suffered a little in decorative value from a too free use of pot Ferns. The Carnations included good vases of Spectrum, Lady Hindlip, Mikado, May Day and Mrs. Walter Hemus.

NATIONAL CARNATION AND PICOTEE.

Although the section of the show arranged by this Society was not so big nor so imposing as that of the British Carnation Society, there was, nevertheless, a bright display of border Carnations, and despite the trying weather conditions, which had a restricting effect on the number of entries, many grand and exquisite blooms were staged, especially by Miss Shiffner, Lewes, who was the chief prize-winner.

Mr. J. Douglas, Messrs. Lowe and Gibson, Ltd., and Miss Shiffner shared the premier awards in the open classes. The first-named exhibitor was first for seven blooms of a pink or rose self-coloured Carnation, showing grand blooms of Dora Spendlow; for a dark red or maroon variety, showing Rhoderic Dhu, crimson, shaded with velvet; for a buff or terra-cotta variety, with Homer, delicate terra-cotta; for any other self-coloured variety, showing Misty Morning; for a yellow-ground Picotee, with Fairy, a small bloom, creamy-yellow edged with pink; and for a Clove-scented variety, showing lovely blooms of Edenside Clove.

Messrs. Lowe and Gibson, Ltd., secured the premier awards in the classes for seven blooms of a white border Carnation, showing Snowflake in good condition; a yellow variety, with Mary Murray; and a white-ground Fancy, with Florence Wellstead, white, edged and flecked with red; while Miss Shiffner was placed first for seven blooms of a red or scarlet variety, displaying exceedingly well-grown blooms of Bookham Scarlet; a yellow or buff-ground Fancy, with Kitro, orange-buff with purple markings; and for any Fancy variety, other than with a yellow or buff ground.

In the second division, for amateurs, Miss Shiffner led in twelve out of the sixteen classes, showing grand blooms in every instance; the other first-prize winners in this section were Mr. J. Fairlie, Acton, for three varieties of white-ground Picotees, and for one variety of a self Carnation, of any colour not mentioned in the special colour classes; and Mr. E. Charrington, Limpsfield, for a white-ground Fancy; Miss Shiffner and Professor F. W. Burstall, Birmingham, shared the second prize in the class for a pink or rose self-coloured variety, no first prize being given.

In Division 3, also open only to amateurs, Mr. E. Jones, Moseley, was the chief prize-winner, securing eight first prizes out of nine, Captain E. M. Wilkinson, Southampton, securing the remaining premier award; while in Division 4, Mr. J. T. Standfast was first for one vase of self-coloured Carnations; Mr. H. Charles, Birmingham, led for one vase of yellow-ground Fancies; for one vase of white-ground Fancies, and for one vase of Clove-scented Carnations; and Mr. W. Lamb, Chigwell, was successful in the class for one vase of Fancies other than white or yellow-ground.

Mr. H. Dellow, Chingford, was successful in the Novices' Class which required one vase of five blooms, one or more varieties, showing good examples of Woodpark, Montrose, Joan Wardle, Mrs. R. Carpenter and Sheila Gibson. Mr. G. D. Murray was first for one or more vases of seedling Carnations, while in the special class for affiliated societies, the only Society to stage an exhibit of twelve blooms of border Carnations was the Liverpool Victoria Horticultural Society, which was awarded the first prize.

In the competition for the President's Silver Challenge Bowl, for a trade exhibit of border Carnations and Picotees on a space eighteen feet by six feet, Mr. James Douglas was first with a charming collection, his outstanding varieties being Dora Spendlow, Bookham Pink, Rattachan, scarlet; Highland Mary, Snowflake, Kate Seaton, Prince John, Misty Morning, St. Joan and Fancy Free; second, Mr. H. Woolman, who included lovely blooms of Undine, Plum, Florence Grisby, Bookham Rose and British Legion; third, Messrs. Lowe and Gibson, Ltd.

The last-named firm was first in the open class for fifteen vases of not less than ten varieties, with a grand set which included lovely blooms of Peach Blossom, Florence Grisby, Viceroy, Corinthian, Joan Wardale and Maisie Lowe; second, Mr. J. Fairlie, whose best blooms were of Sam Griffiths, Ravenswood, May Morning, Bookham Beau and Steerforth.

Miss Shiffner secured the Edith Drake Challenge Cup, for a decorative vase of fifteen blooms; Messrs. Lowe and Gibson, Ltd., showed the best decorative vase of eleven blooms, and Mr. E. Charrington was first for a vase of seven blooms of hardy border Pinks.

Non-Competitive.

These were not numerous. Mr. C. H. Herbert had a collection of his well-known border Pinks, including such varieties as Prince of Wales, pale cerise; Othello, deep, crimson; Mrs. Herbert, bright pink, blotched with red at the base; and Fire King. Messrs. Allwood Bros. staged an extensive collection of border Carnations, and also had groups of Allwoodii Pinks and Dianthus Sweet Wivelsfield; while Messrs. P. S. Hayward and Sons showed a distinct strain of Dianthuses, in several unique colour forms.

NATIONAL ROSE.

July 23.—The show of New Roses which now has become an annual fixture with the National Rose Society, was held in the new Horticultural Hall, Westminster, on this date. Although in some districts an almost tropical downpour was experienced last Saturday, the chief Rose-growing districts did not share the welcome rain, and as the great heat continued, first-grade exhibition Roses were not to be expected; in fact, it was to all intents and purposes a show of garden Roses and, in spite of all the drawbacks of the season, it was a very good show. The trade growers supported the show admirably, and the two classes of groups of representative Roses were especially delightful. The amateurs also set up many good exhibits. There were over fifty new seedling Roses submitted for award, but it must be confessed that even after making allowances for the season, they were not altogether a distinguished gathering. There was no Gold Medal Rose, and in awarding six Certificates of Merit the Council were more than a little kind. Generally, the best of the fifty odd new Roses were those which have previously received the Certificate of Merit, but none of these gave any present impression of being a serious candidate for the higher award, although well worthy of the present position.

Certificates of Merit.

Caledonia.—A substantial and well-formed H.T. variety which is recommended for exhibition and garden purposes. It is of good habit, and the shapely blooms are borne on long and sufficiently stout stems. The foliage is good, and the colour is paper-white with a lemon-yellow glow in the heart of the bloom. Shown by Messrs. Dobbie and Co.

Katherine King.—We are inclined to suspect that the award to this variety is of the nature of an encouragement. Although classed as a H.T. it is more suggestive of the H.P. type. The foliage is abundant, probably too abundant for popular favour, the colour is pink, and the flowers are pleasantly scented. Shown by Mr. G. Marriott, Carlton, Notts.

Lucie Marie.—An H.T. variety recommended for the garden and bedding. The blooms are shapely but of very variable shades of colour, ranging from yellow to a soft orange tint. Some of the petals are lightly lined with peach-pink. The foliage is stout and dark, shining green, and the blooms have a slight fragrance. Shown by Messrs. Alex. Dickson and Sons.

Senorita de Alvarez.—A very beautiful and fascinating, large, single H.T. Rose of the same type as the popular Isobel, which it is likely to rival and even surpass. The flower measures between four and five inches across. The substantial petals are of bright satiny-pink colour. The small cluster of yellow stamens is surrounded by a narrow zone of rich golden-yellow. Shown by Messrs. B. R. Cant and Sons.

Tom Barr.—A pretty H.T. variety of slightly variable colouring, which appears to have distinct garden value. The flowers are of medium size, fully double, and the general colour tone seems to be apricot, flushed with rosy-cardinal. The plants have neat, shining foliage, and the flowers are lightly scented. Shown by Messrs. S. McGredy and Son.

W. E. Chaplin.—A fully double H.T. Rose of rather more than average size, good shape and deep rose-pink colour. Shown by Messrs. Chaplin Bros.

Other New Roses.

As we have suggested, several of the novelties which have previously received the Society's Certificate of Merit disclosed distinct attractions even although they did not warrant promotion in the honours list. The best of these were the deep rosy-salmon Rose Berkley, the bright rose and gold Cherry, and the golden-salmon Portadown Fragrance, raised by Messrs. S. McGredy and Son, and the china-pink hybrid Musk Felicia, raised by Mr. J. H. Pemberton. The more recent novelties of merit included Lady Leslie, a very fragrant, glowing rose-cerise H.T., shown by Messrs. S. McGredy and Son; Marchioness of Linlithgow, a rich velvety crimson H.T. of decided fragrance and a rose-scarlet glow on the blooms, raised by Messrs. Dobbie and Co.; Joan Cant, a very sweet H.T. of Malmaison pink in the centre and a paler pink on the mature petals, shown by Messrs. B. R. Cant and Sons; and Gloria Mundi, an intense scarlet Polyantha Rose, shown by Mr. A. de Ruiter, although, unfortunately, there is something lacking in its habit.

Groups of Roses.

The large groups of representative Roses filled the wall space and contained very beautiful Roses. The first prize was won by Messrs. S. McGredy and Son with a tasteful arrangement which included handsome pillars of Mrs. C. Lamplough, which was decidedly the Rose of the show; Mrs. Henry Bowles and Hortulanus Budde. They also had generous baskets of McGredy's Ivory, Lady Inchiquin, Patience and Mrs. A. R. Barraclough. In their good second prize group, Messrs. Chaplin Bros. had many clean and well-coloured blooms of Waltham Cross, Mrs. Henry Bowles, Innocence, Isobel, Los Angeles and Mabel Morse. Mr. H. J. Pemberton, who was third, used Mermaid, Pax, Madame Butterfly, Paul's Scarlet Climber, and Bernice to good effect. Messrs. B. R. Cant and Sons were fourth with a very pretty group.

The best of the many smaller groups of cut Roses was set up by Messrs. Harkness and Co., and this contained magnificent baskets of Mrs. A. R. Barraclough and Mrs. C. Lamplough, with stands of Lady Inchiquin and Madame Butterfly, and an arch of Allan Chandler. The centre of Mr. George Prince's group was composed of Mabel Morse, and the *Daily Mail* Scented Rose, flanked by Dame Edith Helen, Madame Butterfly and Allan Chandler. Mr. C. Gregory was third, and the Dowty's Rosery fourth.

The baskets of Roses were of good quality. The best three were those of Lord Charlemont, Ruth and Margaret Anne Baxter, shown by Messrs. T. Smith and Son, while Mr. G. Burch was second. The first prize in the class for twenty-four exhibition Roses was awarded to Messrs. T. Smith and Son, and Mr. C. Gregory was second, both staging blooms so overdressed that their character was spoilt. Messrs. B. R. Cant and Sons were third with a more pleasing exhibit. A first prize was awarded to Mr. G. Burch for a very good collection which included Mrs. A. Carnegie, Dean Hole, George Dickson, and Mrs. C. Lamplough. Mr. Henry Drew in his good second prize exhibit, had particularly good blooms of Mrs. C. Lamplough, Mrs. E. J. Hicks and Mrs. Foley Hobbs. Mr. Henry Drew, showing Mrs. A. R. Barraclough and Mrs. Henry Bowles, of great beauty, was the first of the seven exhibitors of two baskets of Roses. Mr. C. Gregory was second.

Amateurs' Classes.

In his first prize exhibit of exhibition Roses in boxes, Mr. H. F. Spicer included, in George Dickson, the best bloom of the section, and also staged creditable specimens of Dame Edith Helen, Candeur Lyonnaise and Madame Louise Crette. Mr. J. E. Rayer was second, and he showed Mrs. C. Lamplough and H. V. Machin, of good quality. Mr. W. E. Moore had the best six blooms, and his best were Mrs. C. Lamplough and Mrs. E. J. Hudson. Mr. Norman Fletcher showed good blooms of Ethel and Mrs. C. Lamplough. In the class for six vases of decorative Roses, Mr. S. E. Tattershall was first with very good vases of Padre, Lady Gay and Joana Bridge. Mr. R. C. Wallhead was similarly successful with Paul's Scarlet Climber, Excelsa and Souvenir de Claudius Pernet. Mr. E. H. Pleasance won a first prize with George Dickson, Coronation and other good varieties; while in the next class, Mr. George Marriott showed particularly good examples of Golden Emblem, Los Angeles and Souvenir de Claudius Pernet.

The decorative classes were all well contested. Mrs. Tisdall was first in the Nurserymen's Dinner Table class, with a tasteful arrangement of Roselandia, and was also first with a bowl of the same variety. In the amateurs' section, Mrs. Courtney Page was first with a charming dinner table of Emma Wright, and Mrs. Charlton was first with a well arranged bowl of mixed Roses.

CHERRY AND SOFT FRUIT SHOW.

Seldom before has such a grand display of soft fruits, and of Cherries in particular, been staged in London, as was seen on the occasion of the Sixth Cherry and Soft Fruit Show, held under the auspices of the Kent Branch of the National Farmers' Union, at the new Horticultural Hall, in conjunction with the meeting of the Royal Horticultural Society on July 16. Fourteen Challenge Cups, in addition to several pieces of plate and numerous silver egg-cups and egg-spoons, were competed for, and attractive money prizes were also offered. Large numbers of entries were recorded in practically every class, and the general quality of the fruits displayed was very high.

In the classes for single 4-lb. chip baskets of distinct varieties of Cherries, the first prize winners were:—Messrs. F. and T. Neame, Faversham, for Roundell or Bedford Black; Messrs. Smeed, Dean and Co., Ltd., Sittingbourne, for Waterloo, and for Noble; Messrs. Wakeley Bros., Ltd., for any other black variety; Mr. Walter F. Wood, Chekes Court, near Sittingbourne, for Napoleon (the champion basket of Cherries in the show); and for Amber (Kentish Bigarreau); Messrs. G. H. Dean and Co., Ltd., for any other white variety; and Mr. Frank Maylam, Ham Street, Ashford, for any red (sour) variety.

There were eleven grand exhibits in the class for baskets of three distinct black varieties, the first prize being awarded to Mr. J. D. Maxted, Teynham, Sittingbourne; second, Messrs. G. H. Dean and Co., Ltd., while competition was also very keen in the corresponding class for white fruits, the last-named exhibitors securing the premier award with grand fruits of Florence, de Mezel and Napoleon; second, Messrs. Smeed, Dean and Co., Ltd.

Mr. J. D. Maxted was first in the class for a collection of varieties (not exceeding twelve) in 1-lb. punnets, with a fine set, Messrs. G. H. Dean and Co., Ltd., being placed second, and Messrs. W. Brice and Sons, Higham, third.

There were four classes for Gooseberries, and each was well filled, Mr. W. C. Ballard, Strood, was first for one 4-lb. chip basket of any red variety, showing grand fruits of Lancashire Lad; second, Messrs. Smeed, Dean and Co., Ltd., while for one basket of Leveller, Mr. Sydney Wakeley, Rainham, was first, with enormous fruits, Messrs. H. and A. Hales and Mr. W. Alexander being second and third, respectively. For one basket of any green, white or yellow variety, other than Leveller, Mr. G. Setterfield, Ash, near Canterbury, was first, and Messrs. Wakeley Bros., Ltd., second.

Some grand fruits were shown in the class for 1-lb. punnets of not more than four varieties of Gooseberries, Messrs. W. Brice and Sons, Higham, securing the premier award, their varieties being Leveller, Careless, Lancer and Gunner; second, Messrs. Wakeley Bros., Ltd.

Mr. J. F. Foat, Ash, was placed first in the class for a basket of any variety of Red Currants, showing grand fruits of Fay's Prolific; second, Messrs. Wakeley Bros., Ltd., with Daniel's Perfection; while in a similar class for Black Currants, in which there were twenty-one entries, Mr. T. J. Hasell, Bromley Common, who showed the variety Edina, was first; Mr. W. West, Crabwood, near Winchester, with Seabrook's Black, second; and Mr. W. Alexander, Eynsford, with Davidson's Eight, third. Competition was also keen in the Raspberry class, which required 1-lb. punnets of any one variety, Mr. S. Austin Smith being the successful exhibitor, with good fruits of Lloyd George, followed by Messrs. G. H. Dean and Co., Ltd.

In the Tomato class, Messrs. G. Fairs and Son, Kingston-by-Sea, Sussex, were first, with a box of uniform and well-coloured fruits of Edmund's No. 2, Mr. John Buries, Hockley, Essex, who showed good fruits of Wright's A.1., being placed second; while for a standard tray of Cucumbers, one variety, packed as for market, the latter exhibitor was placed first, his variety being Butcher's Improved; Mr. S. Austin Smith was second, showing Butcher's Disease Resister.

For a tray of one dozen Peaches, one variety, packed for market, Messrs. G. Fair and Son were placed first for grand fruits of the new variety Princess Elizabeth, very dark-skinned and of good size and texture; second, Mr. A. T. Goodwin, Roseholme, Maidstone.

There was one class to which amateurs were admitted, for a collection of Cherries and soft fruits grown in the open, but no amateurs exhibited, and the first prize was awarded to Messrs. R. and D. Mitchell, Wateringbury, who showed a splendid collection of Cherries, Raspberries, Gooseberries, Red and Black Currants, and Strawberries.

LONDON AND SOUTH OF ENGLAND PANSY AND VIOLA.

A small show was staged by this Society on July 16, in conjunction with the fortnightly meeting of the Royal Horticultural Society. The exhibits were not numerous, but some very good blooms were shown.

Mr. J. H. Little secured the first prize for three distinct species, and also for three distinct Violettas; while Mr. M. Mitchener, Croydon, was first in the important class for six vases of exhibition Violas, showing good examples of Jack Milner, Essie Johnson, Melcombe Milner, Moseley Ideal, Walter Kaye and Andrew Jameson; second, Mr. C. Luckin, East Grinstead, and third, Mr. R. W. Spicer, Alton, both with good sets.

Mr. M. Mitchener was again successful in the class for three vases of exhibition Violas, distinct, showing good vases of John Adamson, Moseley Ideal and Walter Kaye, Mr. R. W. Spicer and Mr. E. Noble, Ponder's End, being second and third, respectively.

The best single vase of a white self exhibition Viola was staged by Mr. J. H. Little; second, Mr. M. Mitchener, the latter exhibitor securing first place for four pans of exhibition Violas. Mr. M. Mitchener was first for one vase of a white, cream or primrose, edged or banded, exhibition Viola, with good blooms of Mrs. H. J. Milner, cream, edged lavender; and for one vase of a yellow self Viola, showing John Adamson.

For one vase of a yellow-ground, edged or banded, exhibition Viola, Mr. C. Luckin was awarded the first prize, showing, in this instance, the best blooms in the show, and he was also placed first for one vase of a dark self-coloured exhibition Viola, and for one vase of a Fancy or striped exhibition Viola, showing Andrew Jameson in good condition.

Mr. C. G. Clark, Bishop's Stortford, was successful for a single vase of six varieties of exhibition Violas, followed by Mr. H. R. Day, Brentwood, and the former exhibitor also led for a single vase of an exhibition Viola.

For twelve blooms of Fancy Pansies, Mr. R. W. Spicer was awarded the first prize, and he also showed the best set of six blooms.

Mr. T. Philpot led for one pan of a self-coloured bedding Viola, his variety being Archie Grant, and also for one pan of a bicolor bedding Viola, showing good blooms of Mrs. Marrison.

ROYAL HORTICULTURAL.

The following awards have been made to the undermentioned flowers and vegetables by the Council of the Royal Horticultural Society, after trial at Wisley.

Alpine Phloxes.

Awards of Merit.

(7) *Lavinea*, sent by Miss M. C. Taylor, Reigate; (19) *Sprite*, by Messrs. G. Arends, Ronsdorf; and (20) *Seraph*, sent by Messrs. Barr, Ltd., Covent Garden.

Highly Commended.

(15) Moerheimii, sent by Messrs. Bakers, Codsall; (21, 22) Fairy, by Messrs. Bakers and Messrs. Hemsley, Crawley; and (39) atropurpurea, sent by Messrs. Bakers.

Polyanthus.

Award of Merit.

Barrowby Gem, sent by Mrs. MacColl, Harrogate.

Perennial Lupins.

Awards of Merit.

(2) *Edna*, sent by Messrs. W. H. Simpson, Birmingham; (15) *Highlander*, by Messrs. W. H. Simpson; (29, 70) *Northern King*, by Messrs. W. H. Simpson and Messrs. Dickson and Robinson, Manchester; (31) *Exquisite*, by Messrs. W. H. Simpson; and (82) *Northern Fire*, sent by Messrs. Dickson and Robinson.

Highly Commended.

(5, 55) Ada, sent by Messrs. W. H. Simpson and Messrs. Harkness, Bedale; (6) Elizabeth Arden, by Messrs. W. H. Simpson; (21) Saint George, by Messrs. W. H. Simpson; (22) Delight, by Messrs. W. H. Simpson; (30) Emperor, by Messrs. Downham, Calgate; (33) Twilight, by Messrs. van Tubergen, Holland; (38, 76) Northern Lass, by Messrs. W. H. Simpson and Messrs. Dickson and Robinson; (41) Artist, by Messrs. van Tubergen; (45) Victoria, by Messrs. W. H. Simpson; (67) Northern Beauty, by Messrs. Dickson and Robinson; (71) Northern Torchlight, by Messrs. Dickson and Robinson; (89) Taplow Blue, by Messrs. Barr and Sons; and (27) Rosalind, sent by Messrs. W. H. Simpson.

Trollius.

Awards of Merit.

(7, 21) *Goldquelle*, sent by Messrs. B. Ladhams, Southampton, and Messrs. van Tubergen; (9) *Newry Giant*, by Messrs. Ruys, Holland; (16) *asiaticus var. Salamander*, by Messrs. Ruys; (24) *europaeus var. superbus*, by Messrs. Amos Perry, Enfield; (20) *Lightball*, by Messrs. Ruys; and (51) *His Majesty*, sent by Messrs. Ruys.

Highly Commended.

(2, 18) Orange Princess, sent by Messrs. Bakers and Messrs. van Tubergen; (4) Golden Wonder, by Messrs. Ruys; (6) Fire

Globe, by Messrs. Ruys; (10, 12) Orange Globe, by Messrs. B. Ladhams and Messrs. van Tubergen; (14, 25, 57), Etna, by Messrs. B. Ladhams, Messrs. Van Tubergen and Messrs. Ruys; and (44) T. Smith, sent by Messrs. Ruys.

Mossy Saxifrages.

Awards of Merit.

(42) *Bee's Pink*, sent by Messrs. Ruys; and (64) *Triumph*, sent by Messrs. Arends.

Highly Commended.

(25) Mrs. E. Piper, sent by Messrs. R. V. Roger, Pickering.

Commended.

(33) Enchantress, sent by Messrs. Barr and Sons; and (45) Beauty of Ronsdorf, sent by Messrs. Ruys.

Canterbury Bells.

Awards of Merit.

(4) *Single White*, sent by Messrs. Dobbie and Co., Ltd., Edinburgh; (8) *Calycanthema White*, by Messrs. E. Webb and Sons, Wordsley; (38) *Single Mauve*, by Messrs. Hurst and Son, Kelvedon; (32) *Calycanthema Mauve*, by Messrs. Hurst and Son; and (62) *Double Rose Carmine*, sent by Messrs. Haage and Schmidt, Germany.

Highly Commended.

(14) Single Rose, sent by Messrs. E. Webb and Sons; (19, 20) Calycanthema Rose, by Messrs. W. H. Simpson and Messrs. E. Webb and Sons; (36) Single Mauve, by Messrs. Daniels Bros., Norwich; and (63) Double coerulea, sent by Messrs. Haage and Schmidt.

Rhubarb.

Awards of Merit.

(24) *Hawke's Champagne**, sent by Mr. W. Poupart, Walton; and (25) *The Sutton*†, sent by Messrs. Sutton and Sons, Reading.

Highly Commended.

Alike (9, 14) Collis's Seedling,† entered by R.H.S. Gardens; (28) Buck's Early Red,* entered by R.H.S. Gardens; (34) Appleton's Forcing,* sent by Messrs. Appleton, Northwick; (38) Cutbush's Seedling,* sent by Messrs. Cutbush, Barnet; (40) Crimson Queen,* sent by Messrs. J. Kelway and Son, Langport; and (41) The Streeter,† sent by the Hon. Vicary Gibbs, Elstree.

Commended.

(1) Laxton's No. 1, sent by Messrs. Laxton Bros., Bedford.

GUILDFORD GARDENERS'.

This Society, composed of very enthusiastic gardeners—amateur, professional and trade—held its annual exhibition in the grounds of Stoke Park on July 17. The exhibition was a good one, despite the trying conditions imposed upon mid-Surrey gardeners by the long period of dry weather. The weather was brilliant, competition good, and trade displays excellent. As Stoke Park is above Guildford town, the generous hospitality extended by the President, Alderman W. T. Patrick, to the judges, committee and principal exhibitors, and the Councillors and their ladies, was very greatly appreciated.

The Gardeners' Chronicle Silver-gilt Medal, offered for the best non-competitive amateurs' exhibit, was awarded to Mr. A. E. Tylecote, for a fine display of Sweet Peas.

Gold Medals were awarded to Messrs. Spooner (Guildford), for an array of floral designs, Hydrangeas and Gladioli; and to Messrs. Sale and Son, for a glorious exhibit of Roses.

Mr. J. Denyer showed floral designs, and Messrs. Fogwill displayed Sweet Peas and hardy flowers; each received a Silver-gilt Medal.

Silver Medals were awarded to Messrs. Scott, for Carnations; the Godalming Nurseries, for hardy flowers; the Crastock Nurseries, for Roses, and Messrs. Luff and Son, also for Roses.

The best six vases of Carnations were shown by E. L. Louddras, Esq., who had fine examples of White Pearl, Coral Glow, Mary Allwood and Sunset; second, Mr. Coutts. Major H. Howard (gr. Mr. W. H. Cook) led for nine vases of Sweet Peas with a fine set of Pinkie, Fluffy Ruffles, Avalanche, Blue Bird, Warrior, Grenadier and George Shawyer; second, the Beach Hotel (gr. Mr. Wilby), Littlehampton. In a very keen competition, Mrs. Combie (gr. Mr. T. Young) led for a dozen kinds of hardy herbaceous flowers, and contributed goodly sheaves of Heleniums, Delphiniums, Campanula lactiflora, Achillea Eupatorium, Chrysanthemum Lothian Bell and Lilium candidum; second, R. H. Haslam, Esq. (gr. Mr. T. Boole). A Silver Cup accompanies the first prize in this class.

D. R. Lyle, Esq. (gr. Mr. G. A. Thorsworthy), gained first prize for a collection of four kinds of fruits, and W. T. Patrick, Esq. (gr. Mr. Gill), came second. F. F. Smallpiece, Esq. (gr. Mr. W. F. Binfield), had the best collection of choice fruits, showing Black Hamburgh Grapes and Dymond Peaches in excellent condition; second, J. J. Joicey, Esq. (gr. Mr. J. Mackay).

Major Howard showed the best collection of six kinds of vegetables, and was followed closely by Gordon Stewart, Esq. Mr. A. Norman excelled for a display of Roses, and showed Mrs. H. Morse, Captain Harvey Cant, Margaret D. Hamill, Mrs. H. Stevens and Etoile d'Holland, in good form; second, J. G. Gordon, Esq. (gr. Mr. C. Howell). All the foregoing were open classes.

In the division for members only, P. A. Molteno, Esq., won first prizes for Begonias, and Delphiniums; the Hon. Mrs. Abel Smith, for herbaceous flowers, for fruits and vegetables; F. F. Smallpiece, Esq., for annual flowers, and for Phloxes; and J. N. Cross, Esq., for Roses.

General Sir Alfred Edwards, Mr. E. J. Malyon, Miss A. C. Crookenden, Mr. A. G. Scorer, Mr. Bowyer and Mr. Portsmouth were other successful exhibitors.

The cottagers' and allotment holders' classes were well filled, and there was a capital display of Fuchsias grown by the school children of Guildford.

All the arrangements were excellent, and Mr. Pettit is proving a most capable show secretary.

ROYAL CALEDONIAN HORTICULTURAL.

At the recent meeting of this Society there was a general discussion on the subject of Plant Diseases. Mr. J. S. Chisholm produced specimens affected by the more common diseases and suggested remedies. For cluster cup of Gooseberries, he advised picking and burning all affected leaves and fruits, together with good cultivation; spraying for this disease is practically useless. For powdery mildew of Apples (Sphaerotheca Mali) spraying with lime-sulphur is beneficial, but the prompt removal of affected leaves is an essential part of the treatment. For "reversion" of Black Currants no treatment has yet been discovered that will cure it, and the only method of attack so far is to cut out and burn all affected branches. In Raspberries this season, there has appeared what seems to be a disease causing the canes to die off, but this has arisen through the severe frost in February having burst the bark of the canes. In every case strong, healthy shoots are springing up which ought to give a good crop of fruits next year.

The Glasgow City Parks Department exhibited a group of Hydrangeas, Pear Gynt and Pasteur, Cannas and Alonsoa, for which they were awarded a Cultural Certificate. There were also exhibits of Roses by Messrs. Alex. Dickson and Sons, and early Carrots by Mr. W. G. Stott, Murrayfield.

A seedling Dianthus named Royal Stuart, exhibited by Mr. George Stuart, obtained an Award of Merit.

In the competition for two vases of Roses, Mr. R. B. White, Murrayfield, obtained the first prize, and Mr. Francis Glass, Murrayfield, the second. For six Tomatos, Mr. W. McDowell was first, and Mr. W. Crighton, Mortonhall, second.

PROFESSIONAL GARDENERS'.

By the kind invitation of the Mayor and Chairman of the Huddersfield Park Committee, some thirty members recently visited the Huddersfield Parks. Greenhead Park was first visited, where members were met by Councillor Johnson (Deputy Chairman)—the Mayor and Chairman being unavoidably absent—Captain Irons (Superintendent of Parks), and Messrs. Forbes and Martin of Ravensknowle and Beaumont Parks. Councillor Johnson extended a hearty welcome, and the itinerary began.

Greenhead is a fine and imposing park, the sport-loving public being remarkably well catered for, the tennis courts, bowling greens, putting greens, being maintained at a very high standard. The Rose garden was almost at its best, and the carpet bedding was seen to great advantage. The party was next conveyed to Ravensknowle Park, smaller in area, but containing unique features. Several beds of the comparatively rare Pelargonium Black Vesuvius were noted and admired. A very delightful corner devoted to sub-tropical bedding, with Succulent plants and Cacti, was particularly interesting. Beaumont Park was then visited; this is a park unique in its natural formation of, towering rocks and cliff, rock gardens and pools gorges filled with Ferns, and magnificent terraces commanding a grand view of the surrounding hills and dales. The subjects in the greenhouses were particularly well-grown—also stove plants, which are now becoming rare.

By the kindness and hospitality of the Parks Committee, tea was provided at the Park Café. Mr. J. T. McCormack (President) proposed a hearty vote of thanks to the Mayor, Chairman, Deputy Chairman, Captain Irons, Messrs. Forbes and Martin for their kindness and hospitality. Mr. Tully (Batley Parks) seconded the vote in suitable terms, and was supported by Mr. G. Reid, Organising Secretary.

The party then repaired to the headquarters of the Huddersfield branch of the P.G.A., where a profitable and pleasant evening was spent, new members being elected, and business discussed.

Obituary.

George Burrell.—We regret to announce the death, last week, from pneumonia, of Mr. George Burrell, Parks Superintendent to the Beddington and Wallington Urban District Council. Mr. Burrell, who held a similar appointment at Ashington for many years before going to Wallington in June, 1928, was a keen horticulturist, and made great improvements in the parks under his control during the short time he was at Wallington. He was very popular with the members of clubs and residents using the grounds and gained the respect and confidence of the members and officials of the Council.

Mr. Funatsu.—The greatest of all Cherry lovers has passed away. My last Japanese mail brought me tidings that my old friend, Mr. Funatsu, had recently died. I believe he devoted most of his life to the study and cult of this tree—to talk to him, it almost seemed as though his very soul was steeped in the beauty of their blossoms. His delightful personality and undisguised enthusiasm had an almost irresistible charm. Mr. Hayashi, the Secretary of the Japanese Cherry Society, pays just tribute to his late colleague:—"Mr. Funatsu's death is an irreparable loss to the Sakura-no-Kwai (the Japanese Cherry Society). We had hoped to do many things—among them, the making of a Cherry park. All is now over. There is no one left in Japan to take his place." A portrait of Mr. Funatsu and a brief appreciation appeared in *The Gardeners' Chronicle* of November, 20, 1926. *Collingwood Ingram.*

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* = Award recommended for earliness.
† = Award recommended as a late variety.

R. Jones.—A wide circle of friends in the horticultural world will be deeply grieved to hear of the death of Mr. Richard Jones, which occurred at a nursing home at Leamington on the 13th instant. Mr. Jones, who was sixty-seven years of age, served as a journeyman in such famous gardens as those of Penrhyn Castle, Floors Castle and Dover House. Thirty-seven years ago he was appointed gardener to the late C. A. Smith-Ryland, Esq., Barford Hill, near Warwick, and sixteen years later was promoted to the post of estate agent, a position he held up to the time of his death. Mr. Jones, who endeared himself to the hearts of all he came in contact with, took a leading part in the activities of village life, and his remains were laid to rest amid signs of the deepest sympathy, in the cemetery at Barford, on the 16th instant. At one time Mr. Jones was a prominent exhibitor of Chrysanthemums at Birmingham and other midland shows, where his exhibits won high honours in severe competition. As a staunch friend ever ready to help forward any good cause, or to extend a helping hand to the struggling, he will be greatly missed; and as a fine cultivator and enthusiastic horticulturist, his memory will be esteemed by a large circle of gardeners.

ANSWERS TO CORRESPONDENTS.

BRASSICAS ATTACKED BY CABBAGE FLY.—*H. W. J.* The plants of Cauliflower and Brussels Sprouts are attacked by the larvae of the Cabbage fly, Chortophila brassicae. This pest may be defeated by the use of tarred felt discs, which are placed around the stems of the plants when planting them out from the seed beds. The result is satisfactory, provided the soil is in fine tilth so that the collar lies flat on the surface of the soil. Another method is to sprinkle naphthalene (Grade 16) around the plants, at the rate of a quarter-of-an-ounce per plant. Three applications should be made at intervals of seven days.

CLASSIFICATION OF MUSHROOMS.—*A. P.* Yes, the Mushroom is certainly classed as a vegetable.

GLOXINIA DISEASED AND TOMATO LEAF SPOTTED. *T. J. C.* Both plants were scorched with sulphur fumes. The brown mottling on the Gloxinia leaves was due to the presence of immature thrips, which may be seen along the midrib.

NAMES OF PLANTS.—*P. C.* 1, Oenothera Fraseri; 2, Lysimachia verticillata; 3, Campanula lactiflora (dark form); 4, Escallonia langleyensis; 5, Cistus ladaniferus; 6, Spiraea Douglasii; 7, Erigeron speciosa var.—*G.* 1, Lychnis coronaria; 2, Campanula glomerata; 3, Lathyrus grandiflora; 4, Tradescantia virginica; 5, Paeonia officinalis var.; 6, probably a Hieracium; 7, Eryngium Violetta; 9, Potentilla hybrid, badly damaged; 13, Lilium tigrinum. The remainder were lost or badly damaged in the post.

TOMATOS FAILING TO COLOUR.—*F. G. P.* The Tomatos are quite healthy. The lack of colour is due to shortage of potash in the soil. Apply a light dressing of nitrate of potash and water it in.

TREATMENT OF CRASSULAS AFTER FLOWERING.—*B. B.* The plant you sent was Crassula coccinea. After flowering is over, cut back the plant, and increase it by cuttings.

VINES UNHEALTHY.—*J. H. and A. M.* Your Vines are suffering from scalding. This may arise from insufficient ventilation or, more often, from failure to open the top ventilators sufficiently early in the morning. By ventilating the house very early the fruits and leaves become drier than they would otherwise, before the sun is very powerful, and this is necessary in order to prevent scalding.

Communications Received.—A. M. R.—R. D. F.—C. V. C.—S. A.—M. T.—E. G. M.—W. P. W.—C. P.—G. K.—E. T.

MARKETS.

COVENT GARDEN, Tuesday, July 23, 1929.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Crassulas, per doz.	21 0–24 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0
Fuchsias, per doz.	9 0–15 0

	s. d. s. d.
Hydrangeas, white, per doz.	18 0–30 0
—pink and blue, per doz. ...	18 0–36 0
Lilium longiflorum, per doz.	18 0–24 0
Marguerites, white, per doz.	9 0–12 0
Nephrolepis, in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Roses, Polyantha, per doz. ...	15 0–18 0
Verbenas, pink and scarlet, per doz.... ...	9 0–15 0
Viscarias ...	12 0–18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s.d.
Achillea, white, per doz. bun.	3 0—5 0
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	5 0—6 0
Alstrõmeria, per doz. bun. ...	12 0–18 0
Asparagus plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	1 6—2 6
—short „	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 6—2 6
—short „ ...	1 0—1 3
Asters, white, per doz. bun.	6 0—8 0
—mauve, per doz. bun. ...	6 0—8 0
—pink, per doz. bun.	6 0—8 0
Carnations, per doz. blooms	1 0—2 6
Chrysanthemum, bronze, per doz. blms. ...	2 0—3 0
Clarkias, per doz. bun.	4 0—5 0
Coreopsis, per doz. bun. ...	0 9—1 0
Cornflowers, blue, per doz. bun.	1 0—1 6
—pink, per doz. bun.	1 0—1 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun.	1 6—2 6
Delphinium, blue, per doz. spikes	2 0—4 0
Ferns, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	9 0–10 0
Gaillardia, per doz. bun. ...	2 6—3 6
Gladiolus, large vars., white, per doz. spikes	2 0—3 0
—yellow „	2 0—3 0
—pink „	1 6—2 6
—mauve „	2 6—3 0
—scarlet „	2 0—3 0
—primulinus „	1 0—1 6
Gypsophila, —paniculata, per doz. bun. ...	9 0–12 0
double per doz. bun.	15 0–18 0
Heather, white, per doz. bun.	12 0–18 0
Iceland Poppies, per doz. bun.	2 6—3 0
Larkspur, mauve and pink, per doz. bun. ...	5 0—6 0

	s. d. s. d.
Lavender, per doz. bundles	12 0–18 0
Lilium longiflorum, long, per bun. ...	1 6—2 0
— — short, per doz. blooms	2 0—2 6
—speciosum album, long, per doz. ...	4 6—6 0
— — — short, per doz. ...	2 6—3 0
—auratum, per doz. blooms...	8 0—9 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0
Marigolds, per doz. bun. ...	3 0—5 0
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz, —Cattleyas ...	30 0–42 0
Roses, per doz. blooms—	
—Columbia ...	3 0—4 0
—Richmond ...	1 0—2 0
—Yellow ...	1 6—2 6
—Molly Crawford	1 6—2 6
—Butterfly ...	1 6—2 0
Saponaria, white and pink, per doz. bun. ...	3 6—4 0
Scabiosa caucasica, per doz. bun. ...	3 0—4 6
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	6 0–10 0
—white, per doz. bun.	9 0–12 0
—yellow, per doz. bun.... ...	9 0–12 0
—incana, per doz. bun. ...	10 0–12 0
—latifolia, per doz. bun. ...	12 0–15 0
—Suworowii, per doz. bun.	4 0—6 0
Stock, double white, per doz. bun.... ...	4 0—6 0
—double pink, per doz. bun.	6 0—9 0
—mauve, per doz. bun. ...	6 0—9 0
Sweet Peas, various, per doz. bun.... ...	2 6—3 6
—special, per doz. bun. ...	5 0—6 0
Sultans, white, per doz. bun.	3 0—4 0
— mauve, per doz. bun. ...	3 0—4 0
—yellow, per doz. bun. ...	3 6—4 0

REMARKS.—Conditions are very unsatisfactory, the present weather being unfavourable for the distribution of cut blooms, therefore prices in general are very low; the heavy supplies of Carnations and Roses and all outdoor blooms are too large for present requirements. The newest arrival in this department is double white Gypsophila paniculata and the variety Bristol Fairy, Statice latifolia and S. incana. A few more bronze and yellow Chrysanthemums have been offered, but there is very little demand for these at present. In the plant department trade is somewhat dull. There is little demand for Ferns and other foliage plants. The most attractive lines in flowering plants are blue and pink Hydrangeas in various sizes, Marguerites, Viscarias, Calendulas and some very fine giant Daisies in pots. Hydrangea paniculata var. grandiflora is the newest arrival in this department.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—Worthing, finest, per lb.	0 6—1 0
—Guernsey ...	0 6–0 10
Beet, per bushel	4 0—5 0
Cabbage, Spring, per doz. ...	0 9—1 0
Carrots, French, per doz. bun.	6 0—8 0
Cauliflowers, flat, 6's, 9's, 12's,	— 1 0
Endive, French, per crate, 18's and 24's ...	4 6—6 0
Lettuce, 24's, round ...	1 6—3 0
—Cos box 20's	2 6—3 0
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	1 9—2 6
—broilers ...	1 6—1 9

	s. d. s. d.
Parsnips, per cwt. ...	4 0—5 0
Peas, English, per bag ...	1 6—2 6
Potatos—	
cwt.	5 0—6 0
—English, per bushel ...	— —
Tomatos, English, per box of 12 lbs.—	
—pink	4 0—5 0
—pink and white	4 0—5 0
—white ...	3 6—4 6
—blue	3 0—4 0
—Guernsey ...	4 0—4 3
—Dutch ...	— —
Turnips, French, per doz. bun.	6 0—8 0

REMARKS.—Although trade does not seem particularly active there is a very large volume of produce passing through the market. Hothouse Grapes are selling moderately well, Peaches, Nectarines and Figs are quoted lower, the highest-class trade being not quite so brisk as of late. Raspberries have been abundant and cheap. Melons are also plentiful, but figures in that section are being fairly well maintained. Black Currants have been, and still are, a weak department, and although prices are low there is no life in the demand. Red Currants remain in steady request. Cherries have sold well, practically all varieties and grades going out at prices which are more or less satisfactory to the growers. Gooseberries of the Leveller type are in ample supply, and prices are not too bad. Tomato supplies are heavy and prices inclined to be on the low side. Cucumbers remain steady in supply and demand; Mushrooms are not plentiful, the recent hot weather having more or less exhausted the beds. Vegetables of practically all kinds have been a bad trade, and Cauliflowers in particular are not wanted. The warm weather is probably making itself felt in the kitchen so far as cooking is concerned. Salads are a brisk trade. The Potato market is quiet.

GLASGOW.

The feature of the cut flower market last week was the abundant daily supply of Carnations from English growers, and the low prices that ranged from 8d. to 1s. per dozen. Depression, however, was general and acute. Irises were worth from 1d. to 4d. for 6's; Roses, 6d. to 1s. 6d. per dozen; Sweet Peas, 1d. to 6d. per bunch; Gypsophila, ½d. to 3d.; Calendula, Pyrethrum and Sweet Williams, 2d. to 3d.; Marguerites, 1½d.; Pinks, 1d. to 2d.; Scabious, 3d. to 5d.; Stocks, 2d. to 4d.; Gaillardias, 2d.; Liliums, 1s. 9d. to 2s. 6d.; and Gladioli, small, 4d. to 5d. for 6's; and large, 1s. to 1s. 6d.

Fruit prices showed irregular movements. Strawberries were scarce and realised from 10d. to 1s. 9d. per lb. for table qualities, and 7d. to 9d. for preserving; while English Black Currants were a glut in the market and were difficult to move at 5d. to 6d. per lb.; Scotch-grown supplies averaged 8d.; Red Currants fluctuated between 5d. and 6d. per lb.; Raspberries, 8d. to 1s. 2d.; green Gooseberries, 2d.; red, 1½d.; sulphur, 6s. to 7s. per sieve; Muscat Grapes, 3s. per lb.; Peaches, 7d. to 1s. 2d. each; Melons, 6s. each; Canteloupes, 2s. each; Gages, 18s. per sieve; Plums (Californian), 16s. per tray; Apricots, 8s. 6d. to 9s. (20 lbs.); Grape Fruits, 35s. per ase; New Zealand Apples, 22s. to 24s.; Californian Oranges, 22s. to 26s.

Most vegetables were cheaper. Cucumbers sold from 3s. to 8s. per dozen; Lettuces, 6d. to 1s.; Scotch Cauliflowers, 5s. to 6s. 6d.; Peas, 5s. to 6s. 6d. per pot of 40 lbs.; Beans, 1s. to 1s. 2d. per lb.; Mushrooms, 2s. French Carrots and Turnips, 10d. to 1s. per bunch; home-grown Turnips, 3d. to 4d.

WEATHER IN JUNE.

Until within a few days of its close, the predominating winds during June were westerly. The weather was therefore rather cool, although quite a considerable amount of sunshine was experienced. The principal feature, however, was a continuance of the deficiency of rainfall, the month forming the seventh consecutive one in which the normal precipitation was not reached. From 8 a.m. to 8 p.m. (G.M.T.) hardly any rain was recorded during June, and there was very little more in the evenings. The only wet period was from 1 a.m. to 7 a.m. The month's mean temperature was 56°, or half-a-degree below the average. There were 265 hours of bright sunshine, or 53 hours more than the normal duration. This compared very favourably with some of the sunniest south coast resorts; at Worthing only 237 hours were recorded. Rain fell on 12 days, or merely one fewer than usual; but the total amounted to no more than 1·22 inches, that being 0·94 inch below the average. At Birkdale, however, 1·57 inch was measured. Distant thunder was heard on the afternoons of the 8th and 14th. *Joseph Baxendell, The Fernley Observatory, Southport.*

THE
Gardeners' Chronicle
No. 2,223.—SATURDAY, AUGUST 3, 1929.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 62·2°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 31, 10 a.m. (Greenwich time). Bar. 29·7. Temp. 60°. Weather, raining.

Flower Shows and other Rural Amenities.

Whether there are or are not too many large horticultural exhibitions held annually throughout the country is at present a debatable point among exhibitors, and especially among trade exhibitors. The competition for space for trade displays at these leading shows is severe, and such displays are necessarily costly ; the principal nurserymen and seedsmen make larger and more effective displays year by year, consequently the traders with fewer facilities and limited financial resources have small chance to obtain the highest or even other medal rewards offered. In this connection the line taken by the Guildford Gardeners' Association is worth consideration. The Committee offers a certain number of medals for trade displays, but in two series, one set for exhibits over fifteen feet in length, and one for groups exceeding that space ; this allows all the trade exhibitors a fair chance of securing an award. But whatever the feeling with regard to the increasing number of big shows, every one will agree with the Minister of Agriculture that village shows are acquiring added importance and becoming part of the amenities of rural life. He might have added that village shows are of great importance horticulturally, because of the incentive they afford and the encouragement they provide for local growers—amateur and professional—to excel in the production of garden produce. The higher the general level of skilled cultivation is raised, the better for the country at large. When opening a flower show at Upshire, Waltham Abbey, Mr. Noel Buxton referred to the efforts of the National Gardens Guild, of which the Queen is the Patroness, to bring beauty and colour into the towns. Modern activities, motoring and so forth, have planted many hideous features on the countryside. Petrol stations raise their pale, forbidding heads on red posts, and there are other harsh features along our modern roadways. The Gardens Guild, which is now extending its activities into the country villages, is doing a great service in promoting competitions aiming at beautifying the countryside, while daily papers encourage gardening in large cities, such as London and Sheffield, and good work is being done by Road Beautifying Associations. Horticulture has its more material aspect—the growing of fruits and vegetables—and here the Ministry of Agriculture plays a notable part in improving the technique of cultivation. Mr. Buxton urged local authorities to provide model allotments and demonstration fruit and vegetable plots, and stated that the Ministry was already helping local Councils with money to provide these demonstration allotments. The Lea Valley, in which Upshire Show was held, contains an extensive glasshouse industry, the annual value of the output of Tomatos and Cucumbers alone being over £2,000,000. The Ministry assists research in glasshouse problems by a grant of over £3,500 a year to the Cheshunt Research Station. Mr. Buxton added that he was eager also to promote village amenities, and the Ministry of Agriculture, through the Development Fund, was ready to make grants for the promotion of village halls. Nothing could be more conducive to happier conditions than a place where villagers and the country people around could meet together. The Rural Industries Bureau, also assisted by Government grants, helps to promote handicrafts, such as basket-making, and the Minister commended these activities for the improvement of social amenities to the notice of every village.

Teddington Lock Garden.—Many of the lock-keepers on the Thames are keen gardeners, and their efforts are encouraged by the Thames Conservancy Board, which offers prizes for the best efforts. This year the Sir Reginald Hanson Challenge Cup has been awarded to Mr. A. E. Allen for the charming garden he has tended so skilfully at Teddington Lock, just above Richmond.

The Foundling Hospital Site.—On Tuesday, August 6, a large holiday play centre, organised by the Children's Play Centres Committee, will be opened by permission of Lord Rothermere on the Foundling Hospital Site, for the benefit of the children in the densely populated areas east and south of the site. Throughout August the old grass lawns, under the ancient Plane trees, will be open as a playground for the children for seven hours each day, and during September they will be admitted after school hours. A play-centre for " toddlers " has been organised in another part of the grounds.

Sutton Bonington Horticultural Conference.—At a recent Conference of Horticultural Organisers and Inspectors, held at the Midland Agricultural and Dairy College, Sutton Bonington, Loughborough, Mr. R. V. Harris, of the East Malling Experimental Station, gave a very interesting account of the lines of investigation pursued at that station, with special reference to their practical application to commercial fruit production. The speaker first dealt with Dieback of Stone Fruit Trees, particularly of Plums and Cherries. These diebacks are not influenced by soil factors nor by the stocks, but different varieties show different susceptibilities. Victoria Plum and Giant Prune are very subject to the disease, which is most serious on young trees up to five years old. It has been shown that the disease can by induced by inoculations of bacteria obtained from diseased plants. In Cherries, dieback is not so serious as in Plums, as its effect is usually limited to portions of the trees. Mr. Harris then explained the methods of spraying to be adopted for control of Apple Scab and mildew. The use of lime-sulphur was advocated. The difference in susceptibility according to the different stocks was noted, and the different effects of the spray on such Apples as Cox's Orange Pippin and Stirling Castle was emphasised, after which he dealt with the various Raspberry diseases. He gave full details of the serious disease known as Cane Spot, and showed how spraying with Bordeaux mixture will reduce the damage. He pointed out how lime-sulphur appeared to control the disease, but, unfortunately, injured the plants for future cropping. Mr. Harris stated he considered the Mosaic Disease the most serious menace to the Raspberry-growing industry. The disease was little understood yet. It had been shown that it was transmissible by grafting and different varieties exhibited varying susceptibilities to the disease. Laxton's Abundance was virtually immune, and Bath's Prolific very resistant. Red Cross, Beaumforth's Seedling and Pyne's Royal do not suffer much, but Superlative and Norwich Market are very susceptible. A very interesting discussion followed, and Mr. Harris was heartily thanked for his most interesting and valuable paper, which was illustrated throughout with lantern slides.

Recreation Grounds for Tilbury.—On July 27, Mr. W. L. Tourle, Clerk of the Works of the R. E. War Department, Chatham, formally handed over to the Tilbury Urban Council the lease of a portion of the lands and premises of the old Tilbury Fort situated outside the actually fortified area. It is the intention of the Council to use the acquired area for recreation purposes. A promenade, with a bandstand, will be constructed, and a field will be set aside as a playground, while it is proposed to clean out a portion of the moat and to convert it into a bathing pool and model yacht pond.

Edinburgh v. Kew.—An interesting event took place on Kew Green on Wednesday, July 24, when teams from Kew and Edinburgh Royal Botanic Gardens met to play a friendly cricket match, which, after a keen struggle, terminated in favour of Edinburgh. This may lead to future matches between these famous botanic gardens, and further cement the bonds of friendship which at all times have existed between these establishments.

Foremarke Cup for Gladioli.—The annual competition for the Foremarke Challenge Cup for Gladioli will take place this year at the Royal Horticultural Society's fortnightly show in the new hall, Greycoat Street, Westminster, on August 13. The Cup is offered for the best twenty spikes of named Gladioli in not fewer than ten varieties. Not more than two spikes of any one variety may be shown. The competition is open to both amateur and trade growers. Entry forms may be had on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.1. Entries close after the first post on Wednesday, August 7.

Arrowe Park, Birkenhead.—Birkenhead's spacious open space, Arrowe Park, is at present the home of fifty thousand Boy Scouts, representing forty-two nations. The park is well-wooded, and an ideal setting for the great international Jamboree. It has been stated that Arrowe Park is the largest open public space in the country, but we are doubtful whether it is entitled to this distinction. Perhaps our readers may help us to discover which is the largest public open space.

Strawberry Crop Failure in North-east Scotland.—The bright prospects engendered some weeks ago of a bumper Strawberry crop have failed to materialise, and the market gardeners in the north-east of Scotland are faced with heavy financial loss in connection with the crop.

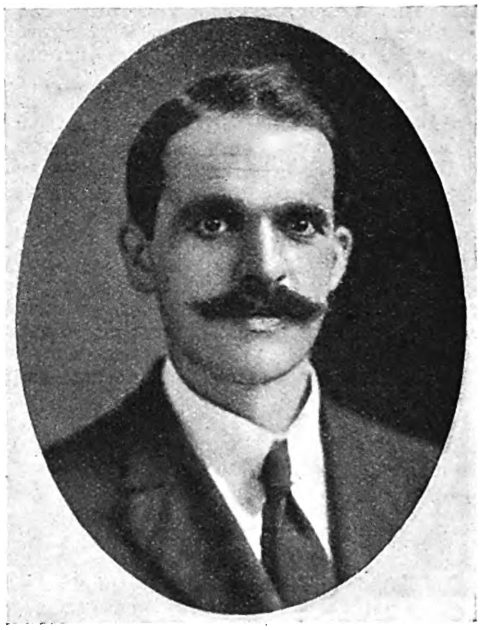
The failure is not due to the disease reported from Clydeside and Lanarkshire, but to the extreme drought and brilliant sunshine which has prevailed for weeks past. Whole areas under Strawberries have been turned completely brown, leaving little to show for the time and money expended. It is computed that where a hundredweight of Strawberries was gathered last year there will this season be only a few pounds. This is all the more tantalising when it is remembered that in late spring and early summer the plants looked wonderfully well and bloomed profusely. All the conditions then pointed to a successful season, but it has turned out one of the poorest for many years Coming late, as they do compared with the English crop, Scottish Strawberries are always sure of a good market in the south. Happily, much more favourable reports have to be given of the Raspberry and Black Currant crops. These are looking exceedingly well, and provided nothing untoward occurs, should give excellent returns.

Summer Meeting of the Royal English Arboricultural Society.—An interesting programme has been arranged for the summer meeting of the above Society. The headquarters for the meeting will be at Sheffield, and visits will be made to various estates in Lincolnshire and Yorkshire during the week commencing August 26. The Manby Estate will be visited on August 27, and the Brocklesby Park Estate on August 28, both of these being owned by the Earl of Yarborough. The Wentworth Estate and the Doncaster Estate, owned by Earl Fitzwilliam, will be visited on August 29 and 30, respectively. The tree-felling competition, confined to members of the Society in Lincolnshire, Yorkshire, Nottinghamshire and Rutland, or men regularly employed by members in these counties, will be held in Brocklesby Park on the afternoon of August 28, and the Annual General Meeting of the Society will be held at 9 p.m. on the same day, at the Grand Hotel, Sheffield.

Control of the Codlin Moth by Parasites.—It is reported in a recently issued *Daily Science News Bulletin*, published by Science Service, Washington, D.C., that an attempt is being made to control the Codlin Moth in the Walnut groves of California with the aid of a minute Chalcid egg-parasite, by adopting the mass-rearing and liberation of the parasite (Trichogramma minutum). The Chalcid is known to attack a great variety of insect eggs, and those of the Grain Moth are stated to have proved specially suitable for breeding purposes. It is stated that, in a building with a floor space twenty-five feet by thirty-six feet, one million parasites are reared per day. Packages containing 100,000 parasitised eggs of the Grain Moth are sent by mail to growers troubled with the Codlin Moth, and when the parasites emerge from these eggs they are released in the Walnut groves, where they soon seek out the eggs of the Codlin Moth. It is hoped that by raising the Trichogramma population in the Codlin Moth infested areas, the wholesale destruction of the eggs of the latter will result.

Cliveden Reach.—We learn that Lord Astor has offered to preserve, as a private open space, certain lands at Cliveden, by the Thames, above Boulter's Lock. This is being done in conjunction with the Town Planning Committee of the Eton Rural District Council, and will ensure the preservation of the beauties of one of the loveliest spots in the Thames valley.

"The British Fern Gazette."—Special features in the final part (No. 12) of Vol. V of *The British Fern Gazette;* which is edited by F. W. Stansfield, M.D., F.L.S., and published by the British Pteridological Society, are a frontispiece of an exceedingly fine frond of Polystichum angulare divisilbum plumosum deltoideum, which was raised by the late Mr. H. Stansfield; a review by Mr. S. P. Rowlands of Professor Bower's Presidential Address to the Yorkshire Naturalists' Union, at York, entitled "The Evolutionary Relations of the British Ferns"; and an account by Mr. E. A. Elliott of the Fern planting that has been carried out at the Staffordshire Nature Reserve. This reserve is at Hawksmoor and lies on high, well-wooded and; its superficial area is given as 200 acres, but taking into account the valleys and hills, the area is stated to more readily approximate 400 acres. Some thirty species of Ferns have been recorded in Staffordshire, but the majority of these are now rare, and some extinct, and in September, 1928, a small party, including Mr. Elliott, met at the reserve and planted many of these species. The various Ferns planted, and their positions, are recorded in Mr. Elliott's interesting account, and the hope is expressed that they will escape the vandals, who have already appeared on the scene.



MR. F. W. MILES.

Mr. F. W. Miles.—The Horticultural Lecturer and School Garden Organiser for the County of Hertfordshire is Mr. F. W. Miles, who had a long and varied horticultural experience before taking up his present duties in 1919. He commenced his gardening career at Kelston Park, Bath, in the gardens of the late Major-General Inigo Jones, and afterwards worked for two years in the pleasure grounds at Camerton Court, Somerset, followed by two years as fruit journeyman at Latimer House, Chesham, Bucks. For one year he was plant journeyman at Vale Royal Abbey, Northwich, and then proceeded to Stubbins House Gardens, Maidenhead. Subsequently he was appointed gardener at Ware Park, Ware, Hertfordshire, and held that position for five years. His next appointment was that of Horticultural Superintendent of the Y.M.C.A. Training Centres for Discharged Soldiers and Sailors, and during eighteen months' tenure of this post arranged displays of ex-Servicemen's garden produce at the Free Trade Hall, Manchester; St. George's Hall, Liverpool; Winter Gardens, Blackpool, etc. In 1919, he obtained his present position. In 1926, when the Bath and West and Southern Counties' Show was held at Watford, he superintended the making of a model school garden, a quarter-of-an-acre in extent. The garden was made in ten weeks, and when the exhibition opened it attracted much attention, containing, as it did, vegetables, fruits, flowers, experimental and demonstration plots, together with an up-to-date meteorological station. While in charge of the school garden exhibit at the recent Royal Jubilee Show of the Hertfordshire Agricultural Society at Hatfield Park, he had the honour of being presented to their Royal Highnesses the Duke and Duchess of York. In 1927, Mr. Miles took a Rural Science course at Homerton College, Cambridge. For six years he was Technical Secretary of the St. Stephens (St. Albans) Society, and for two years Show Secretary of the Watford and Home Counties Society, and this year acted as the first Press Secretary of that young but vigorous organisation. Mr. Miles has broadcasted practical gardening talks on six occasions from 2 L O and for many years has written gardening articles for the technical and lay press, contributed to *Black's Gardening Dictionary* and *The Complete Amateur Gardener*. He is also the author of *Jottings from a Gardener's Notebook*, and *Gardening in Practice and Theory.*

National Institute of Agricultural Botany.—At the eighth annual general meeting of Fellows of the National Institute of Agricultural Botany, at Cambridge, on July 26, the Chairman of the Council, Dr. Beaven, reviewed in turn the principal activities of the Institute and their development in the past year. Two important branches of the work, the official seed-testing station, and the Wart Disease of Potatos immunity trials, are delegated to the Institute by the Ministry of Agriculture, and these functions are supplemented by cognate investigations into germination problems, Potato virus diseases and the yield and maturity of Potato varieties. The Potato Synonym Committee, of which Dr. Salaman is the Chairman, had within the last year been able to report a substantial improvement in the nomenclature of Potatos; the Council hoped to win the co-operation of seedsmen in extending this work to cereals in the near future. This would be undertaken by the Crop Improvement Branch as a part of its main function of sorting the good from the bad among old and new varieties of farm crops, and so helping each farmer to choose the variety which would best suit his particular requirements. Dr. Beaven referred to the encouragement offered in the last century by the Royal Agricultural Society to plant breeders and, after tracing the relationship between animal and plant breeding and the influence of Mendel's work, pointed out that field trials of the kind undertaken by the Institute would be needed for many a year to come. The difficulty of the task and the value of the results were alike illustrated by the series of Barley trials completed in the past year. Two varieties raised by systematic methods of plant breeding had been shown to be generally and significantly more profitable to farmers than any others, and records collected independently by the Official Seed Testing Station and the Essex County Farmers' Union not only confirmed this conclusion but showed that these two varieties are now grown more widely than any others. The study by competent critics of these and the similar results now being obtained at the Institute would win for it the support of agriculturists which alone could make effective its motto—"Better Seeds, Better Crops."

Scottish Sweet Pea Trials, 1930.—The Committee of the Scottish National Sweet Pea, Rose and Carnation Society has decided to continue the trials of Sweet Peas, not in commerce, in 1930. Twenty-five seeds of each variety must reach the Secretary, Mr. John Smellie, Westwood Cottage, Helensburgh, Dumbartonshire, not later than the last week of September, so that all may be sown on October 1. Five shillings for each variety must be sent along with the seeds.

Birmingham and Midland Counties Gardeners' Mutual Improvement Association.—This Association was established in 1880, with the late Sir Thomas Martineau as President, "for the promotion and advancement of the Science and Practice of Horticulture, by holding periodical meetings, at which essays and lectures shall be delivered and discussions initiated on all subjects connected therewith, and by forming a library suitable for the general information and reference of members. That the members shall consist of persons who are professional gardeners, under-gardeners, amateurs, nurserymen and seedsmen." The Association has kept true to its purpose and is to-day one of the largest in the country. Lectures are arranged fortnightly at the Chamber of Commerce during the autumn and spring months, in accordance with the original rules and regulations. Summer outings and rambles of an educational character are arranged to readily accessible places of interest. The summer visits for 1929 were arranged as follows:—Monday, May 27: The Grove, Harborne, by kind permission of the Lord Mayor and Lady Mayoress of Birmingham; Saturday, June 22: Primrose Hill, Selly Oak, by kind permission of Mr. and Mrs. George Cadbury; Monday, July 15: Warley Park and Abbey, Birmingham City Corporation; and Saturday, July 27: Annual Outing, by kind permission of H.M. The King, to visit the State Apartments, Windsor, and the Royal Gardens, Frogmore. The Rt. Hon. The Lord Mayor of Birmingham, is President for the present year.

Legacies to Gardeners.—The late Dame Jemima Church, of Shelsey, Kew Gardens, who died on May 8, 1929, left £200 and one year's wages to her gardener, Mr. Goodchild.—The late Mrs. Caroline Tremlett, of Highlands, Exeter, who died on April 21, 1929, left £100 to her gardener, Mr. Thomas White, and £50 to her under-gardener, Mr. Francis Bert Cowler, if in her service at her death.—The late Mr. John Burnup, of Brantwood, Gosforth, Northumberland, who died on May 2, 1929, left £80 to his gardener, Mr. Thomas Matthewson, if still in his employ and not under notice.—The late Mr. Henry Alexander Latham, of Lyndhurst, Childer Thornton, Chester, who died on January 29, 1929, left £75 to Mr. William Hill, and £50 to Mr. Samuel Davies, his gardeners, if still in his service.—The late Mr. Walter Freire Marreco, of Northumberland Street, W.C., who died on May 10, left an annuity of £20 to his gardener, Mr. George Francis Biles.—The late Mrs. Mary Ann Penelope Laurence, of York Terrace, Regent's Park, who died on April 23, 1929, left £52 per annum to Mrs. Mary Ridgewell, widow of her late gardener.

New Seedling Violas.—At a meeting of the Scottish Pansy and Viola Association, held at Glasgow on July 27, Certificates of Merit were awarded to Viola Ann Walker, a cream ground variety edged with lavender raised by Mr. Quintin McFadyen, Carluke; and Isa Muir, a deep canary-yellow Viola, edged with lavender, grown by Mr. David Stevenson, Burnbank.

Stachys tuberifera in Flower.—Miss D. H. Moutray Read informs us that Stachys tuberifera is flowering freely this year in her garden in Sussex. In *The Vegetable Garden*, translated from the French by MM. Vilmorin-Andrieux et Cie, by Mr. W. Robinson, it is stated that the Chinese Artichoke (Stachys tuberifera) seldom flowers "in European climates." The hot, dry weather experienced of late has evidently encouraged it to flower in this country.

Berry-bearing Honeysuckles.—The current issue of the *Bulletin* of the Arnold Arboretum, Harvard University, contains an illustration of fruiting growths of Lonicera bella, and a statement that "L. tatarica and its several forms and hybrids are now (July 15) laden with ripe fruits. These old-fashioned bush Honeysuckles are still among the most useful of the larger shrubs for parks and gardens in the colder parts of this country and Canada. Natives of northern Asia, they are accustomed to a rigorous climate and given plenty of room they will make bushes from fifteen to eighteen feet tall and from twenty-five to thirty feet in diameter, with ascending and spreading branches, forming a round-topped mass. The flowers, white, yellowish, or pink, are freely produced in the early spring and now at high summer the branches are weighted down with ripe berries. In the typical L. tatarica the fruit is red; in the variety lutea, it is orange and translucent. There are several hybrids of which L. tatarica is part parent, all of them excellent shrubs, but none is better than L. bella, which bears enormous quantities of rich crimson berries. These bush Honeysuckles are good-natured plants, but like other shrubs, they respond to liberal treatment. Given a good loamy soil, a position where their roots can be plentifully supplied with water and abundant space in which to develop, they will be objects of beauty decade upon decade. The only pruning necessary is from time to time to remove old and worn-out stems. They enjoy wind and sun, and winter cold never injures them."

Appointments for the Ensuing Week.—Monday, August 5: Bletchley and District Horticultural Society's Summer Show; King's Lynn Horticultural Society's Exhibition; Pershore and District Horticultural Society's Exhibition; Wadhurst and Ticehurst Flower Show and Sports. Tuesday, August 6: Royal Caledonian Horticultural Society's meeting; Abbey Park, Leicester, Flower Show (two days). Wednesday, August 7: National Carnation and Picotee Society's meeting; Rotherham and District Horticultural and Chrysanthemum Society's meeting; King's Walden Bury Horticultural Society's Exhibition; Royal Welsh Agricultural Society's Exhibition (three days); Scottish National Sweet Pea, Rose and Carnation Society's Exhibition (two days); Royal Dublin Society's Horse Show (three days), with Royal Horticultural and Arboricultural Society of Ireland; Gainsborough Allotment Holders' meeting; Northampton Municipal Horticultural Society's Fête (two days); Thursday, August 8: Bakewell Farmers' Club and Horticultural Society's Show. Saturday, August 10: Charfield Fête and Flower Show; Leeds Paxton Society's Open Exhibition night; National Carnation and Picotee Society (Northern Section) Annual Exhibition.

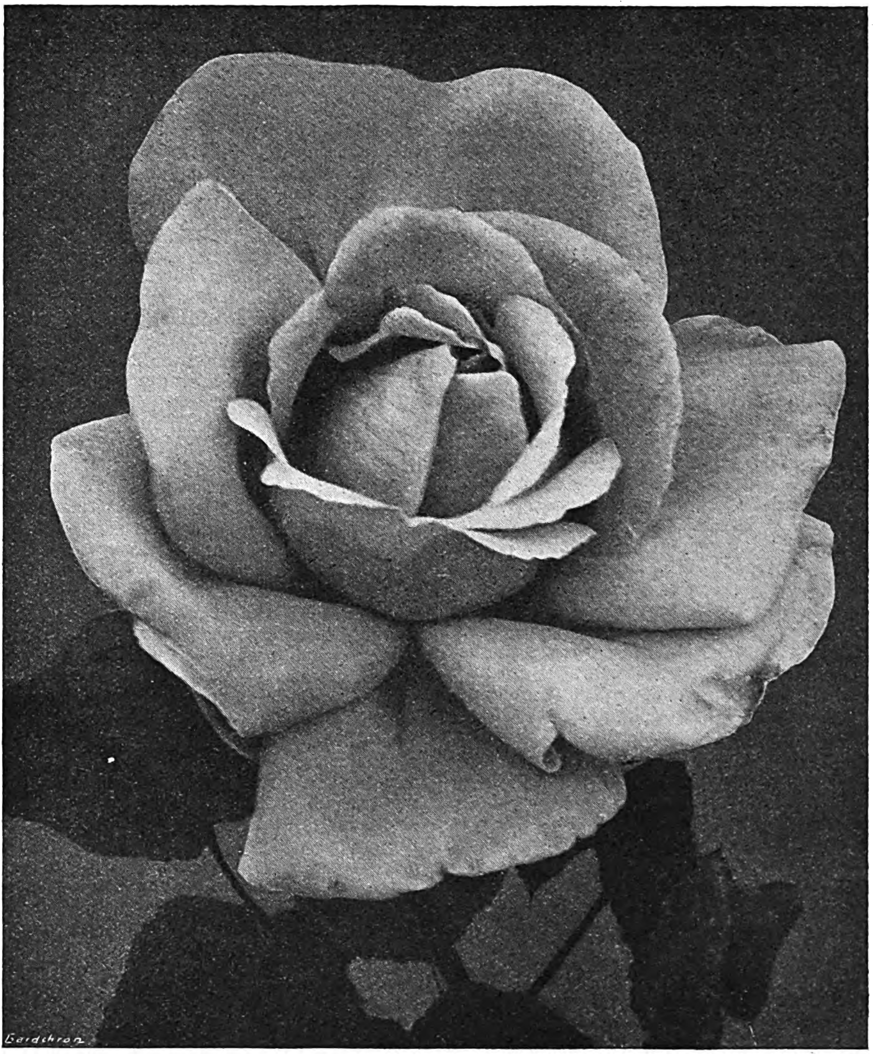


FIG. 37.—ROSE JAMES REA.

N.R.S. Gold Medal, Hereford, July 10. Flowers deep rose. Shown by Messrs. S. McGredy and Son.

(see p. 55.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Underhill's "Sir Harry" Strawberry*,—"I recommended," says Mr. Beaton, "two sorts of the Strawberries exhibited at the last Chiswick fête, to my late worthy employers, Sir William and Lady Middleton, as most useful in the dessert, but whether or not they are of good flavour is more than I know; the kinds were the Bicton White Pine, a large, white berry, that will make a most useful change in a dessert for great or small parties, and a very dark one named Sir Harry. This last was sent by Mr. Richard Underhill, of Edgbaston, near Birmingham." Having for many years had much experience, and taken great interest in the cultivation of fruit, I called upon the gentleman just mentioned for the purpose of making more particular inquiries respecting his seedling, and possessing myself of that information as to flavour, etc., which Mr. Beaton could not give. Mr. Underhill politely invited me to walk through and inspect his beds, when I was perfectly astonished at the enormous size and deep colour of the fruit, combined with the excessive cropping of the plant. I then tested the flavour with Keen's Seedling and British Queen, both equally well ripened, when the superiority of Sir Harry to either was at once so evident that I pronounce it the most exquisitely flavoured berry I have ever tasted. It is both firm and juicy, and carried its rich red colour entirely through it. The other distinguishing characteristics of the plant are these—its leaves are few, and it spreads its bearing branches out so wide as to thoroughly expose the fruit to the full influence of sun and air.—*James Boucher (formerly Gardener to the Lady Olivia B. Sparrow), King's Heath, Worcestershire. Gard. Chron., August 5 1854.*

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Scale Insects.—These are nearly always present on some Orchids, although, perhaps, not quite so numerous just now as when drier conditions in the houses favour their increase. The bases of pseudo-bulbs and rhizomes are favourite grounds for them, from which they soon spread over the plants and do considerable damage. They should be removed by careful sponging so soon as detected.

Cypripediums.—The elegant flowered, dwarf-growing, succulent-leaved Cypripediums, which include C. bellatulum in variety, C. niveum, C. Godefroyae and its beautiful variety leucochilum, C. concolor, and the many hybrids derived from these, chiefly produce their handsome flowers during the spring and early summer months, and should receive attention with regard to repotting, etc., after the flowering period. Now is a good time to repot any that require fresh soil or larger receptacles. Care should be taken when disturbing the fleshy roots not to damage them; if the roots are healthy and vigorous, the least disturbance given, the sooner will the plants become established, provided the old, sour compost can be shaken out. It is advisable to allow the soil to become fairly dry before turning the plants out. Good drainage is essential, and as these are lime-loving subjects, limestone chips should be used largely in the drainage and also incorporated in the soil, which may consist of equal parts of good fibrous loam and finely cut fibre, although this should be pressed firmly among the roots; ample quantities of limestone chips and crushed crocks should be added in order to keep the soil porous so as to allow the water to pass away quickly. These Cypripediums require rather drier treatment than the green-leaved Cypripediums, especially in the winter time, therefore the growths should be kept well above the soil and moisture should not be allowed to collect in the centre of the growths, while the compost should become dry between each application of water. The plants thrive well when grown in a light position near the glass, at the warm end of the intermediate house, with humid surroundings, and shaded from strong, direct sunshine. During the winter, much drier conditions, both atmospheric and at the roots, should be maintained.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Effects of the Drought.—The rainfall during the past seven months has been extremely low, and has had very serious effects in many gardens about here, while it has also been the cause of much loss to growers of Raspberries and other fruit crops. Any rain that fell during the past three or four months was accompanied, or followed, by strong winds that soon dried up the surface soil to a marked degree, and in gardens the effects of the long-continued drought are being experienced severely. It is in a season like the present one that the inadequacy of the water supply is felt most sorely, for the fruits and vegetables, in most cases, fail to attain their fullest development owing to the lack of sufficient water. Where there is a fair supply, the distribution is often at fault. More often than not there is an insufficiency of galvanised piping to lead it to the most important quarters, and always an insufficiency of hydrants. These are costly, but in a very short time they will save their cost in hose and labour many times over. These hydrants should never be more than a hundred feet apart, as a hose-pipe more than fifty or sixty feet in length is cumbersome to handle. Besides, the wear and tear on a long stretch of hose-pipe is very great. Therefore, the more hydrants there are, the least abuse there is to the piping. Fruit trees planted late this spring have suffered severely, even although the soil to the outward stretch of the roots was heavily mulched with manure and kept moist by watering. The strong sun heat and wind seemed to extract all the sap from the stems and branches. In many cases the trees will require drastic but intelligent pruning next winter if they are to pull through.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

The Early Orchard House.—Nearly all early Peaches and Nectarines will now be cleared of their fruits, and provision should be made for another year by potting and getting the trees thoroughly established without loss of time. The first consideration is the compost; as all stone fruits like, and must have, lime, the loam should be fairly dry, rather heavy, and of a calcareous nature. Correctives and stimulants may consist of bone-meal, lime-rubble, burnt earth and a little soot; if the loam is too light, dry, pounded marl may be substituted for the burnt earth. Pots should be clean, dry, and carefully crocked with potsherds, half-inch bones or oyster shells, and of sufficient size to admit the compost to be thoroughly rammed. Before potting, the roots and soil of the trees should be well soaked a day or two before they are turned out, as no after-watering will moisten a ball that is dry at the time of potting. Remove so much of the ball of soil as possible with a pointed stick, and cut back any straggling roots; when placed in the pot, the ball of roots should rest on some of the roughest of the compost, the top of the ball being about two-and-a-half inches below the level of the rim, to allow for an inch of compost above it and to leave room for liberal supplies of water. Return the trees to the house, which should be kept rather close and moist by frequent damping and dewing; if slightly shaded during very hot weather for a few days, the trees will soon take to the new compost and make fresh lateral growths, when ordinary treatment for a week or so may precede removal to the open air. Many older trees may be returned to pots of the same size, an operation which requires a little more care, hence the advisability of allowing the wood and buds to get a little further advanced before this work is performed. In many cases the old compost can be removed easily by immersing the roots in water for a short time. When the old compost has been reduced and the roots trimmed, repotting may be done, provided the compost is fairly dry. After potting, close, moist treatment as described above will restore the trees to active growth in about ten days.

Late Peach Houses.—The final thinning should have been finished. Keep the strong growths, and also shoots that will be removed after the fruits are gathered, pinched back; weak ones may be left full length. So soon as stoning is completed, a good top-dressing may be applied, together with liberal supplies of liquid manure nearly every day. Unless the fruits are wanted early, it is best to keep the side ventilators constantly open, and raise the air temperature by closing the top ventilators for a few hours on fine afternoons. Liberal thinning, good feeding and syringing are important factors, as half the number of good fruits will weigh as much as double the number which have exhausted the trees in the process of forming the stones.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Richardia africana.—Plants that have been rested should now be turned out of their receptacles and repotted. Shake all the old soil from the roots and grade the rhizomes into their respective sizes, selecting the largest for planting in eight- or ten-inch pots; those of a second size may be placed in five- or six-inch pots. If it is desired to increase the stock the best pieces that are left may be planted moderately closely together in boxes and grown on in a cool house. A suitable compost is composed chiefly of loam, with some decayed cow or horse manure and coarse grit added. R. africana, when growing freely, delights in plenty of moisture at the roots, being naturally semi-aquatic. After potting them, place the plants in a somewhat shady position, and where they can be protected from heavy rain. For the first few weeks little water will be needed at the roots, syringing, both morning and evening, being sufficient. In these gardens large numbers of Arums are planted out in borders; where this is practised the rhizomes should be planted in the kitchen garden and lifted and replanted inside when frost is expected.

Fuchsias.—These old favourites are not grown nearly so much now as in previous years. When at the R.H.S. Gardens at Wisley a few days ago, I was delighted to see two large houses devoted to Fuchsias, which were being grown for trial. It was pleasing to note varieties grown so well in days gone by when these subjects were grown extensively as specimens in large tubs. Cuttings should now be inserted for the purpose of raising young plants for flowering next year. The cuttings may either be inserted singly in small thumb pots, or several may be placed around the edge of a sixty-sized pot; where the latter method is practised, see that the young plants are potted singly before the roots become an entangled mass. When the cuttings have formed roots, stand the young plants on a shelf near the roof-glass in a cool house, and a few weeks later pot them on into three- or four-inch pots, after which they should be grown steadily on throughout the winter. Fuchsias that are still flowering will derive great benefit from frequent applications of liquid manure.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Early Potatos.—These will now be maturing, and should be lifted, during which process tubers of suitable size for seed purposes should be selected, and laid out in the sun, to "green," turning them every two or three days. These early Potatos may be stored in a dry shed until required, with a covering over them to prevent them turning green. The ground from which they have been lifted may be planted with autumn Cauliflowers or spring Broccoli.

Cabbages.—The sowing of Cabbages to yield produce for spring and early summer is an important matter, especially if a large and continual supply of vegetables has to be maintained. Seeds may be sown now and another sowing made about the twelfth of next month. Flower of Spring and Harbinger are two reliable varieties. Sow the seeds thinly in rows, so as to secure good sturdy seedlings for planting out.

Vacant Ground.—Ground upon which early Peas have been grown should be cleared and dug and manured, and planted with Broccoli for spring use. Should the ground be dry, give a good soaking of water before putting in the Broccoli, and place the plants in water for a couple of hours before planting them.

Parsley.—If Parsley is required for winter use, the early-sown plants should be cut well back to encourage the production of fresh growths, which will withstand the winter and provide good material for culinary purposes.

Spinach Beet.—So soon as the young plants are fit to handle, they may be planted in lines eighteen inches apart, allowing fifteen inches between the plants. This crop should prove valuable in the early spring, when green vegetables are scarce. Hoe between the rows frequently throughout the growing season.

Winter Brassicas.—The beds of Savoys, Cabbages, Kales and Broccoli should be examined and any gaps in the rows made good amined any vacant ground may be planted at once with these subjects.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Bearded Irises.—The enthusiasm which many eminent hybridists have devoted to these charming plants has at last brought them into a prominent place in the garden. No garden is complete during May and June without a collection of these easily grown plants. The popularity of the Iris is due partly to the comparative ease with which it may be grown, as it thrives, more or less, in any good garden soil, provided the position is open and sunny, and because it is an ideal plant for cultivation in towns, where it seems to be immune from the diseases which attack it under what one would consider more congenial conditions. Planting may be carried out from the end of July to early spring; perhaps from early August to the end of October will be found as good a period as any. Soil and situation are important factors; the former should be deeply trenched and generously enriched, applying well-decayed manure or decomposed vegetable matter as trenching proceeds, if the land is poor; avoid using fresh manure, which will cause sappy growth; such is conducive to rhizome-rot. Poor soils will be benefited by an application of superphosphate, and bone-meal may be used with advantage. Although bearded Irises are often planted in shady situations, they are really sun-loving plants, and delight in an open, sunny position where their rhizomes become baked in the sunshine, after flowering. Stagnant moisture is fatal to them. If the soil is deficient in lime, this should be added when the ground is being prepared. Planting should be done very shallowly, just placing the rhizomes on, or immediately below, the surface, and making them quite firm until the new roots get a hold of the soil. It is usually advisable to transplant these Irises every three or five years, but the grower must be guided in this in his own observations. At Wisley there are over a thousand varieties in the bearded Iris collection, and with the early-flowering pumila section, and then the intermediates, followed by the June-flowering varieties, they give a wonderfully long season of bloom at small expense in the matter of labour. If rhizome-rot appears, remove the diseased portion so soon as it is noticed and, if possible, transplant the Irises to another portion of the garden. A dressing of superphosphate will greatly help the plants to recover from, or prevent, this troublesome disease. The cost of many of the modern varieties is naturally high, as the increase of some is slow, but from the point of view of garden decoration, there is a wide choice in the various sections of the older kinds which contain ideal plants for ordinary garden purposes. Intending planters will find a good guide in the varieties that have done best in the trials at Wisley which, with descriptions, will be found in the *Journal* of the R.H.S. for January, 1928. These have all been grown under ordinary garden cultivation, and no variety is given any special treatment.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemont, Monkton, Ayrshire.

Vegetables.—Except in the most favoured localities, Prickly Spinach and winter Onions should now be sown. In specially favoured districts this work may be deferred for a week or so. A south border should be chosen where possible, the ground from which early Peas, Cauliflowers or Potatos have been cleared being quite suitable if lightly forked over and well trodden and levelled. Too rich a soil is not desirable, as the resultant growth will be soft and not likely to survive the winter. The seeds, in both instances, should be sown rather thinly, so that little if any thinning will be necessary. Rows one foot apart are most suitable, as this distance allows ample room for the development of the plants and also permits of frequent hoeing so long as the ground is workable. A second sowing of winter Cabbage should be made at the same time, in case the first sowing should prove too early, as it may should the weather be particularly fine. If not, the second sowing will winter in the seed-bed and be available for planting in spring.

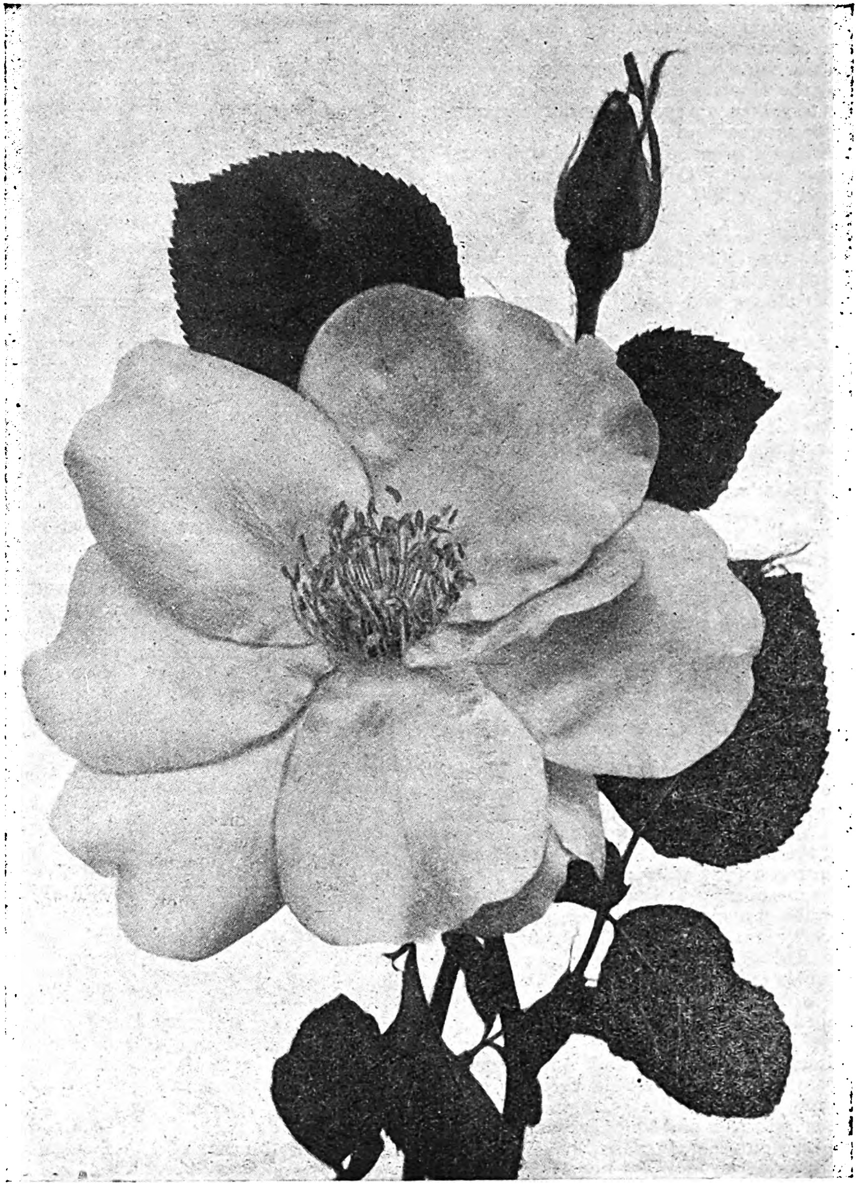


FIG. 38.—ROSE SENORITA DE ALVAREZ.
N.R.S. Certificate of Merit, July 23. Flowers large, single, satiny-pink. Shown by Messrs. B. R. Cant and Sons. (see p. 77.)

Malmaison Carnations.—These, having finished flowering, should be layered at once with a view to obtaining fresh stock. Only healthy, robust growths should be layered, and in no case should they be made long. A cold frame is the best place for rooting them, the soil being raised well up to the glass. Spread a layer of leaf-mould and sharp sand in equal parts over the surface. Turn each plant out of the pot and plunge the ball of roots on its side, spreading out the selected shoots all around. Remove all leaves up to the point selected, and make a good tongue by cutting half through the shoot; peg this securely into place so that movement is impossible. The growths should be almost upright when fixed, and as they should not be left long after roots have formed, they may be pegged fairly closely together. Water them at once, afford shade from sunshine, and syringe them frequently until rooted, which should be in about three weeks. Plants selected for growing on should be potted at once in pots at least two inches larger than those now occupied. Three parts good fibrous loam, one part old cow manure, and rough sand, lime-rubble and broken bricks or drain-tiles equal to at least one part, with a dusting of Carnation manure and bone-meal, should prove a suitable compost. Good drainage is essential. The plants should be well watered previously to being repotted, and the potting soil should be in a dry, rather than a wet, condition. Pot the plants firmly, using a wooden rammer for the larger specimens. Place the plants in the coolest house available, shade them from sunshine, spray them overhead on hot days, and give water at the roots only when they show signs of flagging. They should be placed on a good bed of ashes, and this should be kept moist. Should thrips or red spider appear the plants should be dipped or sprayed.

TREES AND SHRUBS.

VACCINIUM VITIS-IDAEA.

THIS is a charming little shrub for the rock garden and one that does not appear to have had its great merits duly recognised. It may be cheap and a native, but its evergreen, Box-like leaves which cover the wiry, twiggy growths some six inches long, are pleasant at all seasons, and it can put up no small claim to be a flowering and fruiting subject of distinction. The blossoms appear during May and early June in clusters of a dozen or so, each having a four-lobed, bell-shaped corolla which is waxen-white, with rosy markings and a length of a quarter-of-an-inch. These are quickly followed by the berries, which are about the size of those of Holly, and much the same colour, but, as they ripen in succession, the clusters give a variety of tints from green to yellow, orange and scarlet, throughout the later summer and autumn.

The Cowberry is certainly "the handsomest of our native species" (W. J. Bean), and I have spent a good many half-crowns on other Vacciniums which are not nearly so good. It is, of course, perfectly hardy (I came upon it the other day close to the 3,000 feet line in Snowdonia) and enjoys a fairly cool, peaty or vegetable mould with stones and grit. Full exposure is desirable.

Although apt to run and thus form a wide mat, I have not found the plant troublesome in that respect. Its right place is doubtless the Heath garden, occupying wide crevices between boulders, but it is useful with almost any other Ericaceous shrubs. One wonders why Linnaeus gave this shrub the specific name of Vitis-idaea, the "Vine of Idaea"—presumably a mountain of Asia Minor—when it is so essentially a northern species and must have been plentiful in his own land. *A. T. J.*

CAMELLIA JAPONICA.

ALTHOUGH not generally recognised as such, Camellia japonica and its many beautiful varieties, ranging in colour from deepest red to purest white, and in form from five-petalled singles to perfect doubles, is one of the very best of hardy evergreen shrubs. It is not adapted to exposed, wind-swept positions, but if sheltered from the north and east winds, it makes a shrub of singular beauty, lovely both by reason of its lustrous, dark green foliage and its delicate, exotic-looking blooms. Of its hardiness, there is no doubt, for Mr. W. J. Bean, of Kew, records that it has withstood 31° of frost without suffering in the least.

When fully-grown it makes a small tree thirty to forty feet in height, but plants smaller than this and of more bush-like proportions are admirable for the small garden. A sheltered situation is advisable, so that the flowers, which appear from April to June, may have an opportunity of developing their full beauty without harm from late frosts. As a general rule, the single and semi-double varieties open their flowers better in the open than do the double-flowered sorts, and for this reason should be selected for out-of-door planting.

It is advisable to purchase a plant of fair size for planting out, or alternatively to grow on a small plant in a greenhouse for a couple of years or so, for very small plants grow slowly at first if planted out. A peaty soil or one containing an appreciable proportion of leaf-mould is desirable. *T. H. Everett.*

HOHERIA OR PLAGIANTHUS.

PLAGIANTHUS Lyallii and the variety glabrata are two of the comparatively few New Zealand shrubs, or small trees, which are reasonably hardy in most British gardens. It may appear strange to some interested readers to know that both shrubs passed unharmed through the long spell of frosts, when, on several consecutive nights, from 20° to 25° of frost were registered. The explanation would appear to be that a see-saw temperature of 30° or 40° in forty-eight or seventy-two hours, with perhaps some rain, does far more harm to the branches of shrubs on the borderland of hardiness than a continuous severe spell of dry, cold weather.

These beautiful deciduous shrubs or small trees, nine to ten feet or more in height, produce their flowers several together from the axils of the leaves on the new shoots of the year, the blooms being of a papery whiteness, one-and-a-quarter to one-and-a-half inch across. These two Plagianthuses are among the most beautiful of shrubs for the pleasure grounds and shrubbery borders. In exposed gardens in the north, where Plagianthus Lyallii and var. glabrata may be of doubtful hardiness, they will be found excellent subjects for a sheltered south or west wall.

The two are readily distinguished by the leaves, even with the eyes shut, the downy character of the leaves being so marked in the type, P. Lyallii, as to give the shrub a greyish appearance. The type is also rather more upright in habit of growth, and the flowers more translucent than in the variety glabrata. Seeds, layers and cuttings are all available as methods of increase.

The most satisfactory soils are those on the light side, and well-drained; the least success may be expected on heavy, wet ground.

A third generic name for these shrubs, and the one used in the *Botanical Magazine*, t. 5,935, is Gaya Lyallii. *A. O.*

APPLES AND PEARS AS ORNAMENTAL TREES.

A SHORT time ago it was my pleasant privilege to pay a visit to the garden of the Managing Editor of *The Gardeners' Chronicle*, and while I admired his Liliums, and incidentally was amused to see him with a pointed stick removing the top-dressing material so that the growths of his favourites could meet the sunlight, I confess to even greater admiration for a venerable and tall Catillac Pear tree growing in the middle of the garden, as a permanent memorial—so I thought—of the time before London had spread its tentacles of bricks and mortar so far out as Brentford and the market gardens of the district supplied the metropolis with a big quota of its fruits and vegetables.

It is a fine old tree, that Catillac Pear, worthy of a place as an ornament in any garden and the sight of it set me thinking. I decided to invite Mr. Curtis to come to the West Country where the cider Apples and Perry Pear trees grow, and form his own opinion of them as ornamental trees, quite apart from their utility value. Well, he came and saw, and this article is the outcome of his suggestion that something about these trees might be of interest to the readers of *The Gardeners' Chronicle*.

Let me take the perry Pears first, which for some unexplained reason are chiefly confined to Gloucester, Hereford and Worcester, for Somerset and Devon, although famous for their cider, have never grown perry Pears. In many of the orchards in the counties named, there are venerable and ornamental specimens of trees, capable in a good season of bearing a ton and more of fruit, and their origin belongs to a period in history when perry and cider were the staple, if not the only, beverage consumed in the west country.

A good example of these ancient fruits is the Barland Pear, which is described in Hogg's *Fruit Manual*—still a classic, by the way, in fruit nomenclature—that was grown in Hereford prior to the publication of Evelyn's *Pomona* in 1674, and it is safe to state that some of the trees then referred to are still alive and bearing. The original tree is stated to have grown in a field called Barelands, in the parish of Bosbury, hence the name. One would like to have the history of many of the old Barland trees that still remain, and know something of the changes they have witnessed since they were first planted.

Then there is the Oldfield, the fruit from which is considered by many experts to make the best of perry, and the Malvern Hill, which, as an accident of nature, made its appearance in the vicinity of the Worcestershire hills after which it was named. Away back in the years that are long gone, there was raised, or rather, nature raised it, in the Severn-side village of Norton, near to Gloucester, a perry Pear that is known as the Norton Bull, perhaps because the farmer on whose holding it originated bore that name. Be that as it may, the Bull Pear is found in many of the orchards in the locality, and quite apart from its bearing propensities as a specimen tree, it is extremely ornamental.

The Taynton Squash originated in another Gloucestershire village of that name, and at Blakeney, a village on the outskirts of the Forest of Dean, nature produced another Pear which the natives called the Blakeney Red, on account of its bright colour on the side of the fruit exposed to the sun. Blakeney Red has a long history; in prolific seasons in the past tons of the Pears have rotted on the ground because no one would pick them up, but one year, in the war, Blakeney Red had fame thrust upon it. There was a big crop, which by a curious coincidence was not controlled in the matter of price. Tons of the Pears were sold at a shilling a pound wholesale, and farmers still talk about paying the rents of their holdings out of the crops of three or four trees of Blakeney Red Pears.

Nowhere outside the western counties are these perry Pear trees to be found, and so ornamental are they as specimens that if they could be transferred to public parks and gardens they would be much admired, if only as a contrast to the inevitable Limes, Planes, Elms, Chestnuts and Sycamores which are so common everywhere.

Regarding cider Apples as ornamental trees, let me instance Strawberry Norman, which is a bitter-sweet Apple valued by the cider-maker and, as its name indicates, originated in Normandy, from where perchance it was brought by some monk or holy friar, and planted in the orchard of one of the religious houses that flourished in the west country prior to the reformation. Strawberry Norman has a very distinct habit, inasmuch that its branches, which are spurred right back to the stem, grow out from the latter almost at a right angle, and the spread of branches on trees I know that have not been planted twenty years is more than thirty-six feet. What a picture an avenue of Strawberry Norman Apples would make, and for providing shade on a lawn I cannot imagine a more suitable specimen tree.

Then there is Eggleton Styre, another Apple of quite ornamental and distinct habit. In this case the branches are slightly pendant and when right away from the stem they take a turn upwards, just as if the leading shoots were doing this to meet the sun. In an orchard, this distinct habit is noticeable, but it would be even more so if a tree was standing alone as an isolated specimen.

In Sweet Alford, a native of the broad-acred county of Devon, from which a lot of the Devonshire sweet cider is made, there is the most perfect specimen of a standard orchard Apple I know, and its growth is as graceful as it is rapid. All that Sweet Alford asks for is to be planted and left alone. It will shape itself, it needs little or no pruning, and specimens I have planted myself, not twenty years ago, now resemble fair-sized forest trees. When in bloom, the tree is beautiful, and it is equally attractive when the golden-yellow Apples on the branches are approaching ripeness.

It is not my intention here, however, to enlarge on the beauty of cider Apple trees before the fruit begins to fall, but this point is worthy of mention, some of the varieties being striped yellow, brilliantly red or as deep a red as it is possible to get. And, perhaps, without an exception, nature produced all the varieties; they are accidents of her own, and the only object of perpetuating them was to feed the cider mill, but if any public authority is on the look-out for a change in the way of ornamental trees to beautify a park or garden, let me recommend them to consider the claims of west country cider Apples and perry Pears. *A Man from Gloucester.*

ALPINE GARDEN.

AQUILEGIA PYRENAICA.

Farrer devoted nearly two pages of his *English Rock Garden* to this diminutive Columbine, but most of the matter consists of a heroic struggle with the various forms of this species, a "debatable land strewn with the corpses of botanists dead in mutual war" over the plant's differences—and theirs. A. pyrenaica, however, does something towards simplifying matters by keeping itself to itself in the mountains after which it is named—a rare concession in a Columbine. At any rate, the learned in such things tell me that A. pyrenaica is strictly Pyrenean in range, and that all other claimants to its name and rank are scattered elsewhere over southern Europe. That fact, together with the knowledge that my plants came direct from the Pyrenees, sustains my belief that they are of the genuine article.

This neat little plant has been, not unworthily, described as A. alpina in miniature. But it is, in addition to being so much smaller, considerably more refined in all its parts. The few loose sprays of small, pale-green leaves are extremely light and airy in effect, and the almost leafless flowering stalk, which hardly attains one foot, bears flowers of no more than an inch across. These are a deep, royal blue, which is accentuated by the central tassel of golden stamens.

A. pyrenaica is hardy and by no means difficult in a moraine mixture or any gritty soil, provided it is rather on the cool side, with shade from the mid-day sun. It is stated to enjoy lime, but does not insist upon it. I have not tried this species from seeds, but there is reason for believing that it will come very fairly true by that means.

INULA ENSIFOLIA.

So many of the taller Inulas are either troublesome underground runners (it took me ten minutes to put one in and ten years to get it out), or mop-headed, sprawling growers, that practically all of them have had their places taken by better things.

The subject of this note is one of the others, a charming, well-behaved plant whose ranks of slender stems are hidden beneath a fine blaze of warm gold from early July onwards. I. ensifolia does not exceed twelve inches with me. The bronzy stems are wiry and invariably hold themselves erect, and the crisp leaves are narrowed down so as to be in nice proportion to the size of the flowers, which are about one-and-a-half inch across.

The plant increases by off-sets, but it does so slowly and always remains in a self-contained clump. I. ensifolia, moreover, will grow anywhere, and I find it a most useful plant for poor soils and sun-beaten places. At the same time, to see the species at its best it should have a well-drained, stony, but good loam that does not get too parched, and full sun. *J.*

CAMPANULA RAINERI.

For the limestone scree I can call to mind no greater treasure, no gem of beauty more luxuriant, than the true Campanula Raineri. It is not always true as grown in gardens; too often C. pseudo-Raineri is supplied in its place by those conscienceless nurserymen—oh, those nurserymen ! ! !—and although a lovely plant, it loses its appeal after having been carefully planted for the true C. Raineri in the centre of the choicest scree.

C. Raineri is that rarest of rarities, a treasure without a fault; it is easy of culture, easy of propagation and appears with unfailing regularity each spring, no matter what the winter conditions may have been—such, at least, has been my fortunate experience. Its greatest, and almost its only, enemy is the iniquitous slug, and as we are almost free from the pests here, I do not write of their depredations with such vehemence as would be called from the pen of one who had recently mourned the close-eaten remains of some choice Campanula. I certainly take the precaution of placing zinc rings around patches of C. Zoysii and C. Morettiana (yes, patches of C. Morettiana), and other succulent delights, for who knows when the word may go forth to some slug-haunted garden where food grows scarce? and we have Mr. Elliott's word for it that a slug will crawl ten miles for a banquet! But this is all by the way, it is so easy to be discursive, both in the garden and when writing about it.

FIG. 39. MONSERRATE: THE OLD INDIAN GATEWAY.

My best plant of C. Raineri this year is situated on a fully exposed, north-facing scree, the downy, grey, sharply-pointed little leaves forming a running tussock some six inches across, and for the past three weeks this has been completely hidden under nearly forty of the huge, china-blue chalices, each marvellously borne on a frail, inch-high stem. Every flower was almost two inches across, and the effect of the mass of these, all open together, may be well imagined.

FIG. 40.—MONSERRATE: THE ENTRANCE TO THE PALACIO.
(see p. 90).

Happily, C. Raineri may be propagated from runners cut off underground when growth commences in the spring, potted in a sandy mixture, and kept close for a week or two.

C. pseudo-Raineri is by no means to be despised, except as a substitute for true C. Raineri; it is larger and, to my mind, gains a certain amount of blatant self-complacency with its size, but it is well worth planting for effect in large groups on the rock garden, although far too large for the scree. *Will Ingwersen, The Birch, Sharpthorne, Sussex.*

INDOOR PLANTS.

ARISTOLOCHIA GIGAS.

Aristolochia gigas (syn. A. grandiflora) is the largest-flowered species of a very big genus, which includes members from all parts of the world. The blooms on the plant here at Cambridge, which has been flowering lately, are nine inches across and ten inches long, and possess a tail quite eighteen inches in length. They open in the early morning and remain fully expanded for about twenty-four hours, at the end of which time the edges begin to curl inwards, and in a few hours the flower has completely faded.

The colour is a brownish-purple and mottled, shading deeper towards the cavity in the centre, which is dark chocolate.

The only drawback to this handsome bloom is its distinctly unpleasant odour, which attracts numerous blow-flies. They pass down the throat and are trapped by the hairs at the entrance, which allow them to enter and effectively prevent their egress; this is the plant's method of ensuring fertilisation. The leaves, four or five inches in diameter, are cordate and slightly downy.

The compost in which this plant thrives best is one similar to that employed for Cucumbers. The specimen here is planted in the tropical Orchid house and trained up under the roof. Plenty of weak liquid manure, occasionally ringing the changes with soot-water, should be given so soon as the plant shows flower buds.

A. gigas was introduced from Guatemala in the year 1841. *F. H. Wright.*

UTRICULARIAS.

For practical purposes, the Bladderworts may be divided into two sections, *i.e.*, aquatic, and epiphytal, or terrestrial. Several aquatic species may be found floating in still water in Britain and Ireland during the summer months, all with yellow flowers rising above the surface, while the submerged leaves are characterised by fine, subulate divisions, some of them bearing small bladders, or pitchers, thus accounting for the common name. These native species form winter buds at the ends of the leaves, and hibernate at the bottom of the pond, rising again when growth begins in spring.

The epiphytic species usually bear bigger and more striking flowers and have larger, entire leaves. Six or more species of this section have been known in cultivation from time to time, but very few have been established permanently. Three of them are in cultivation here, viz., U. Endresii, from Costa Rica; U. longifolia, from Brazil, and U. montana, from the West Indies. They thrive in Orchid baskets in a mixture of fibrous peat and Sphagnum-moss. Of these, the most successful is U. montana, a beautiful species producing flowers one-and-a-half inch across, pure white, with a yellow disk on the lip, the spur of the corolla being stout and incurved. The leaves will reach to a length of six inches or more, and are broadly lanceolate, tapering to a slender petiole; green, ovoid tubers are produced on the roots. U. Endresii is a less robust species, which has also been known as U. montana var. rosea, but the corolla is pale blue or lilac, although the sepals may sometimes be reddish. The plant is smaller in all its parts than U. montana, but thrives under conditions afforded this species, in peat and Sphagnum-moss, in a warm Orchid house. U. longifolia, from Brazil, bears erect, lanceolate leaves, and its flowers are described as violet-purple in colour. Plants in cultivation here for some years have increased, in baskets of peat and Sphagnum-moss, but have not yet flowered.

Two other interesting species are U. coerulea and U. prehensilis, both from tropical Africa. They flourish in large pots of saturated mud, just covered with water. The whole surface of the mud becomes covered by the dense mat of linear, entire leaves of a bright green colour. From among them arise slender, thread-like stems which twine around twigs, or any similar support within reach, and bear, in the case of the former, pale bluish-white flowers, and in the latter, bright yellow flowers; the flowers, however, are small, although numerous.

The Bladderworts belong to the Natural Order Lentibulariaceae, which includes also the Butterworts (Pinguicula). The biology of the bladders produced by the aquatic species has received considerable attention from botanists, but, apparently, less attention has been given to the significance of the tubers on the roots of the epiphytal and terrestrial species. *J. W. Besant, Glasnevin.*

BULB GARDEN.

HYBRID LILIES.

In your review of Miss Preston's work on Lilies (p. 29, July 13), you suggested that although many hybrid Lilies have been raised from time to time, few, if any, are improvements on the wild plant.

Now, it was my fortune to read these remarks sitting on the lawn of Sutton Court in company with Mr. R. O. Backhouse, the raiser of so many wonderful Daffodils. The purpose of my visit was to enjoy a hurried look at his many fine seedling Lilies—and we at once remarked that if the writer could see what we saw, he would undoubtedly come to a different decision—tall, stately groups of Lilies, five feet to six feet high, in perfect health, carrying great stems of flowers in all shades of colour. Close by was L. Hansonii and seedling forms of L. Martagon and its variety dalmaticum, from which they had originated. In vigour, stature, size of flowers and diversity of colour, they far exceed the original types.

It is well-known that the late Mrs. R. O. Backhouse originally crossed L. Hansonii with various types of L. Martagon, intercrossing the results, so that now, in the second and third generation, many new types have appeared, some after the L. M. var. dalmaticum colouring, fully six feet high, the slender inflorescence typical of L. M. var. dalmaticum taking on a bolder habit with a more panicled stem (the influence of L. Hansonii), while in others there are all shades of yellow from deep orange to pale citron and white, and of L. Hansonii substance. In the Mrs. R. O. Backhouse type they lean more to L. Hansonii in shape of spike—the variation in spotting being most marked, from a few light spots to the other extreme. Some of the L. Martagon types are so freely spotted as to be practically covered. The pollen also varies from pale yellow to crimson. Again, the spotting occasionally shows on the outer petals, which are generally of a different shade.

Imagine the beauty of a bed of one hundred spikes, four feet to six feet high, no two the same! The finest types are being selected and grown, but Lily propagation is none too fast in this country. Our climate is not that of the west Pacific coast. Still, I look forward to the time when these Lilies will be available in quantity. Their constitution is good. They are not miffy in any way, and they come of a class that is, in the main, suited for ordinary garden culture.

Some years ago, I introduced the public to the Davison race of Montbretias, the forerunners of the Earlham type, and later on in life the Bliss Irises—Dominion, Bruno, etc.—improvements on existing types. The undoubted popularity with which these have been received gives me confidence when I venture to predict that, as time goes on, these Backhouse Lilies will become firmly established in our gardens, and that garden lovers will be grateful for their introduction, and will give them a warm welcome on account of their increased vigour and diversity of colour.

Sitting in the shade at Sutton Court, with Lilies in flower all around, and having just read the comments referred to, I was prompted to send you these notes. *Robt. W. Wallace, Tunbridge Wells.*

[We heartily endorse Mr. Wallace's remarks regarding the beauty and markings of these hybrid Lilies, as Mr. R. O. Backhouse very kindly sent us a box of spikes, together with individual blooms of many varieties. EDS.]

FLOWER GARDEN.

ANNUAL COREOPSES.

MOST of the hardy annuals which are suitable for autumn sowing are of procumbent growth, and are mainly early spring-flowering, but the annual Coreopses are of erect growth, and are not in full beauty until the middle of the summer. They are among the brightest of garden flowers, and are exceedingly rich if cultivated in masses, when they are, especially for distant effect, very striking. At the back of herbaceous or mixed borders, or for relieving the sombre aspect of the shrub border, few, if any, annual plants can compare with these. Neither are they transient, for they continue in beauty almost throughout the summer.

They are of the easiest culture, and are not affected by extremes of wet or dry weather to the same extent as are most flowering plants; and, further, they will flourish not only in the country, but will contribute their brightness to town gardens. Their colours—yellow, red, and crimson, separate or in combination—are very brilliant, while in foliage and habit they are, if not elegant, certainly agreeable.

Seeds of these annual Coreopses are generally sown in spring, but when so treated the plants are late in coming into bloom. To have them early, continuous and fine, they should be raised from seeds sown in autumn; but sowing should not be deferred until September, which is the correct time for Nemophilas, but not for Coreopses. The latter are of slow growth in the early stages and, to afford them time to attain to a safe size to pass through the winter, seeds should be sown not later than the third week in August; if the seedlings are thinned out early they should withstand the winter's frosts.

Those who covet a great display for a little outlay of money and trouble, cannot do better than sow seeds thinly in drills early in the present month. The seeds should be only very slightly covered. The varieties, which are all showy, may be selected from any reliable seedsman's catalogue, according to the heights and colours desired.

I might state that a new variety being grown here, called Mayfield Giant, is very desirable, being rich, deep, golden-yellow in colour. *James A. Paice, Copseham, Esher.*

GARBENING BASKETRY.

WHAT sort of basket is a garden basket? The query is one which many gardeners would not feel able to answer offhand. The majority would probably name the Sussex trug, which is not strictly a basket at all, and others would mention some particular design of basket, round, oval or oblong, for which they had a preference, or which they had been given to understand was the correct type for garden use. Others, again, would express the opinion that there was no such thing as a garden basket as such, but that one just used an ordinary basket which happened to be suited to some particular purpose in the garden.

And these last would be nearest to the truth; for, if we leave out the trug (or truck, as it is sometimes called), which is made of thin Willow-wood supported on an Ash frame, there really is no other basket which can be put down as a garden basket, and nothing but a garden basket. One has only to examine the illustrations of garden baskets in a catalogue, or inspect the baskets themselves in a shop, to see that they do not differ materially from baskets in general use, although some may have just that difference in proportions which indicates that they have been specially made to the order of a firm of garden requisite suppliers. The gardener can, therefore, exercise his own choice and judgment in the selection of a basket or baskets for gardening purposes; and can obtain what he requires from any shop which stocks a variety of baskets.

The most handy basket for weeding, thinning Onions, Carrots, etc., is no doubt the trug, and this can be used for other purposes also, such as gathering fruits and vegetables. Being made of solid boards, it permits nothing to sift through, and can easily be kept clean; but these advantages are possessed by an ordinary bucket, which many gardeners use instead of the trug. Where the wicker basket scores is in comparative lightness of weight, so that where large quantities of fruits or vegetables have to be carried, a wicker basket is to be preferred to either trug or pail. In large gardens a big, oval basket, with handle across, is useful for collecting and carrying vegetables into the house. This is from twenty to twenty-four inches long at the top by about a foot wide, and can with advantage be narrower in the middle where the handle is than at the ends, for convenience in carrying. It can be either of peeled or unpeeled wicker, the former being the stronger and more lasting, but not so easy to keep clean. Another useful basket for the same purpose is the round peck "cob," used largely in East Anglia, and there is, also, the oval greengrocers' basket, holding half-a-bushel, which is common in the south of England.

An Apple-picking basket may conveniently be round, with a handle across, like the "cob," but somewhat larger. A metal hook for hanging it to the tree branches is a useful accessory. The ordinary shopping basket is as good as anything for many kinds of fruits and flowers also; in the case of soft fruits, the basket should be lined with tissue paper or large leaves. A popular basket with women gardeners is the "cut flower" basket, either in buff or a mixture of brown (unpeeled) and white (peeled) Willow. Of the various shapes, perhaps the most popular is that which has a curved bottom, something like a punt. A very useful and handy device is a combination stick and basket, the stick having a pointed ferrule so that it can be stuck into the ground, supporting the basket at a convenient height, and leaving both hands free. For sending cut flowers by post, light oblong wicker baskets with lids are much in favour. Postal regulations regarding size must be borne in mind; the length must not exceed three feet six inches, and the length added to the girth must not total more than six feet. These baskets can be made to order by any basket-maker, and the following dimensions for three sizes will serve as a guide: Twelve inches by eight inches by four inches deep; eighteen inches by ten inches by five inches deep; twenty-four inches by twelve inches by six inches deep. These are inside measurements, *i.e.*, the measurements which basket-makers normally work to. For sending fruit and vegetables by rail, "Xmas" hampers of unpeeled wicker are suitable, and so are Watercress "flats"; for large quantities a stout hamper of white wicker makes an ideal container.

Oblong baskets with sloping sides and handle across, fitted with gardening tools, can be obtained, but it is doubtful whether the practical gardener finds much advantage in this combination. Of other types of basket used by gardeners, mention may be made of the "whisket," "scuttle," or "skull" type, used in the midlands and north of England, and in Scotland, which is a very serviceable basket made of split cane woven on stout Hazel ribs, and having a hand-hole at either end; and the round bushel and half-bushel basket with handle on each side of the top border. One of the latest novelties is the wicker wheel-barrow, much in favour with women gardeners owing to its lightness. It is particularly useful for collecting leaves, and does not leave heavy wheel-marks on lawns as the heavier wooden barrow is liable to do. *A. G. Knock, Editor of "Basket and Cane Trades Journal."*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

It appears strange that Rhododendron eximium should be grown in so few places in this country, seeing that it was discovered in Bhutan by Booth more than seventy years ago, is perfectly hardy if protected from strong wind, and is an extremely ornamental species. Being nearly akin to the Sikkimense R. Falconeri, the question whether it should be classed as a geographical variety of that species was discussed by the late Sir Isaac Bayley Balfour and decided in the negative. The features upon which he based his decision are the persistently bearded petioles, the rose-coloured flowers, the densely glandular ovary and the character of the indumentum on the under-sides of the leaves. For the ordinary observer, what serves chiefly to distinguish between the two species is the period of starting into growth and the remarkable appearance of the young leaves of R. eximium. While both species flower in late April, R. Falconeri beginning its young growth about that time, the growth buds of R. eximium (here at least) show no sign of moving until the end of June. Once started, however, they proceed to make a most attractive display, the young leaves being densely clothed with orange-tawny fur on both surfaces, the upper surface retaining the covering until mid-winter. Mr. Millais describe this species as being of very slow growth in Sussex; but on our largest plant here, seven feet high, the annual shoots average fully six inches.

The genus Inula contains several showy species but none, so far as known to me, equal to I. Royleana from the Himalayas. I. grandiflora, I. Hookeri, etc., are disposed to flop and require staking; whereas I. Royleana holds its flaming disks boldly aloft, asking for no support or anything better than ordinary garden soil. There is a finely coloured plate of this flower, from a drawing by H. G. Moon, in Mr. Robinson's *Flora and Sylva*, Vol. I.

Let me endorse Mr. A. T. Johnson's encomium of the Madeira Broom—Genista virgata (p. 48). A large bush here, twelve feet high and twice as much from flank to flank, presented such a sorry sight after the blizzard in February as to make one think it had succumbed, but in mid-July it put forth its invariable cloud of golden blossom, in agreeable contrast with the silvery foliage of Cedrus atlantica var. glauca beside it.

Never in my recollection has any herb sprung so suddenly into favour and spread into so many gardens as Meconopsis betonicifolia has done. Only three years ago I was introduced to it for the first time in the beautiful grounds at Bodnant; this year one meets with it in every collection worthy of the name. Moreover, it has come to stay; and, being a robust perennial, need fear no rival in the variety Baileyi, which, being monocarpic, makes but once a display of its matchless azure.

The numerous species of Daisy Bush cover a long flowering season. The clouds of blossom on Olearia macrodonta and O. ilicifolia become tarnished in July, to be followed by a similar display on O. nummularifolia and O. avicenniaefolia, to be succeeded in August by the latest of the series, O. Haastii.

Voles have multiplied this year to a serious extent, and have wrought much mischief among Lilies—underground among the bulbs and gnawing the stems and foliage, especially of Lilium candidum and L. testaceum. Accounts reach me from Dumfriesshire of much damage done by these pestilent rodents in young plantations. A correspondent asks me whether the shrew mouse does some of this evil work. It cannot be too generally known that the shrew is incapable of injuring trees or plants. It is not a mouse, although it resembles one, but belongs to a totally distinct Order. Rats, mice and voles belong to the Rodentia, whereas the shrew belongs—like the mole and the hedgehog—to the Order of Insectivora, and subsisting entirely on an animal diet, devouring worms and the larvae of insects, is beneficial to both gardening and forestry. Give a dog a bad name!—the shrew has suffered unjustly from being popularly known as the shrew mouse.

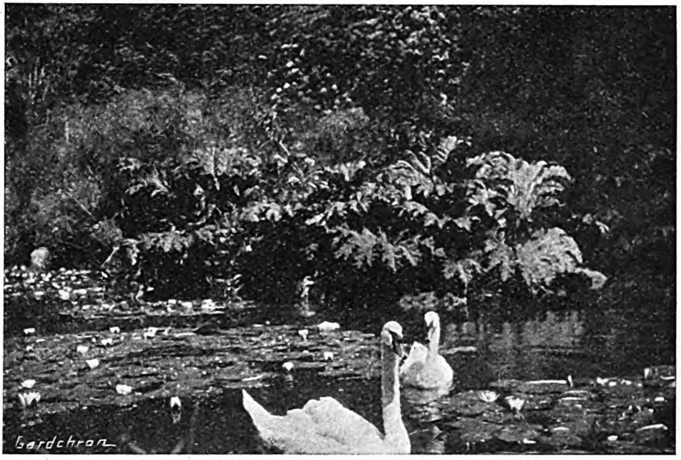


FIG. 41.—MONSERRATE: THE SWAN LAKE.
(see p. 91).

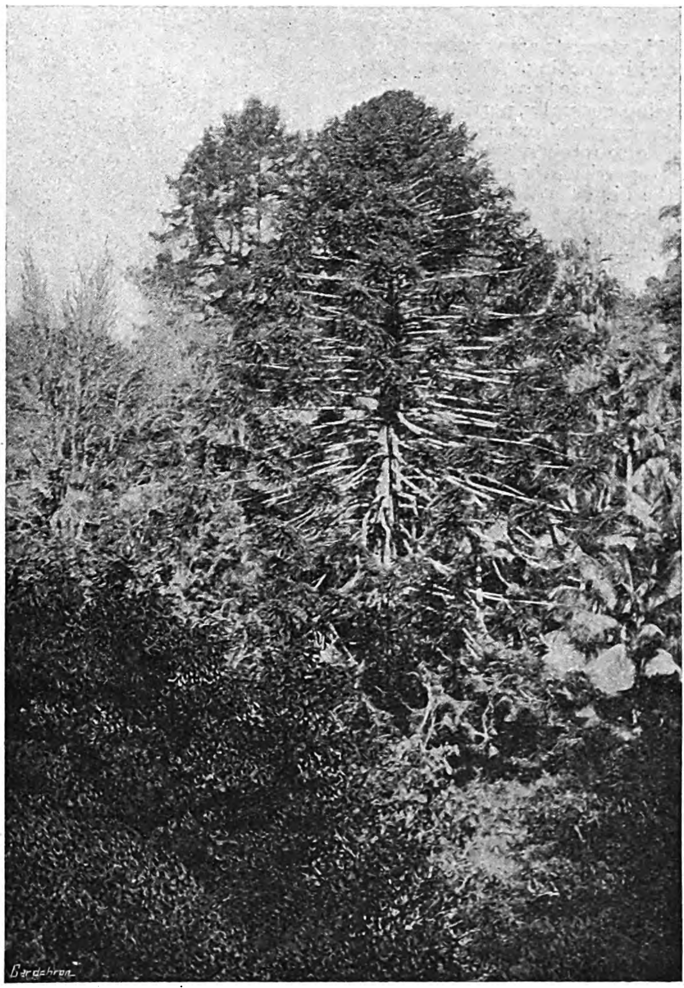


FIG. 42.—MONSERRATE: ARAUCARIA BIDWILLII.
(see p. 90).

Having in a former number availed myself of the hospitality of your columns to express gratitude to a generous lady who sent me bulbs of Fritillaria tristis, may I do so again after receiving some seedling Moraeas. It is the only way in which I can make acknowledgment of the gifts, for although the kind donor signs her letters, they do not bear her address! *Herbert Maxwell, Monreith.*

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MONSERRATE.

THE gardens of Monserrate are very beautiful, extensive and interesting. They are situated in the folds of the Serra of Cintra, on a very steep slope facing, generally, north-west, and are thus sheltered somewhat from the fierce heat of mid-day, and able to retain a large amount of humidity which is particularly suitable to the requirements of the big collection of Tree Ferns and many other plants that thrive luxuriantly in hot, moist conditions. In a deep ravine, the water dashes downwards in cascades from a high waterfall at the top to the ornamental lakes which lie far below at the foot of a large lawn that is crowned by the large and very decorative Palacio (Figs. 40 and 44).

The sides of the ravine are steep, with here and there a large rock standing out boldly and covered with Ferns. The great, glossy fronds of Woodwardia radicans hang over the rocky-edge, and are gently swayed by dashing, silvery spray from the rushing water beneath. Overhead tower the stately Tree Ferns—Cyathea, Alsophila, Dicksonia and others. Large groups of Pteris, Davallia, Asplenium, Blechnum, and many other Ferns fill the spaces between the towering trunks, completely covering the rich vegetable soil in which they revel; all are sheltered and shaded by large Cork Oaks and the beautiful Arbutus Unedo. Here, too, many species and varieties of Begonia thrive. Giant plants of B. arborescens, with long, pointed metallic-hued leaves, and thick, ribbed stems, bear large trusses of delicate white flowers in the early spring; while, on the rock-work beneath, B. manicata forms large, soft cushions of dark green leaves surmounted by dainty pink flower heads. B. Rex, in many fine varieties, grows well in any available nook, while tuberous Begonias flaunt themselves in a few borders.

Higher up, on the sunnier side of the ravine, huge Camellias thrive and flower in great profusion; and here and there among the Ferns rise large plants of Fuchsia corymbiflora, and F. arborescens, with bright pink panicles of flowers, which visitors often mistake for English Lilac. Here, too, are some grand examples of Luculia gratissima, whose large trusses of soft pink flowers fill the whole ravine with their delicate perfume in late autumn. In the crevices of the rocks is found the rare Ivy-leaved Fern (Asplenium Hemionitis) which grows quite freely among mosses and Lycopodium.

Along the sides of a path which crosses the ravine, whence a fine view of it can be obtained, are irregular rock borders in which, beside many Ferns, Primulas of various species and varieties, Cyclamens, Cypripediums and other old favourites, make a good show, shaded by enormous Plane trees (Platanus orientalis), of which one is a great curiosity, having a Cork Oak growing from the same root; the explanation is that the Oak was used originally as a stake to support the young Plane tree, and they grew together, the Plane gradually enfolding the Oak within its roots.

A little way along the path are the ruins of an old Chapel, within which are beds of rare Palms, Ferns and Begonias, with climbing Roses and Wistaria clambering over the bare old rafters of the open roof. The front of the Chapel is covered with Ivy and Ficus repens—and shaded on one side by a superb Catalpa speciosa, and on the other by a huge Ficus rubiginosa. A small pergola supports Tacsonia mollissima and Passiflora actinea, while two small pillars nearby are covered with Kennedya (Hardenbergia) Comptoniana, Honeysuckles and Thunbergia alata.

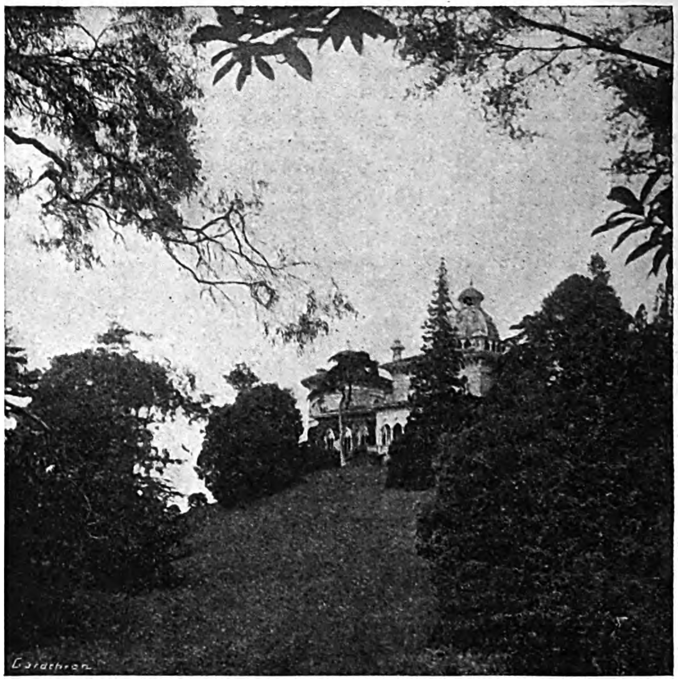

FIG. 43.—MONSERRATE: THE WIDE, SLOPING LAWN.

To the right of the Chapel terrace is a dark glen, sheltered on one side by a very big, old Cupressus lusitanica, with particularly fine drooping foliage, and, farther back, by large groups of Bambusa gigantea, and groups of Camellias. In the foreground are two fine specimens of Cyathea medullaris, large Alsophila Moorei, Dicksonia antarctica and D. squarrosa, and a good plant of Cyathea dealbata, associated with Luculia and Fuchsia corymbiflora.

Just below this terrace are fine groups of Exochorda grandiflora and Staphylea colchica; Feijoa Sellowiana, which bears delicious fruits every year; Trithrinax brasiliensis, Raphiolepis japonica, a low, thick bush about ten feet through, which is almost covered with thick white flowers in spring; and Tibouchina semidecandra (Lasiandra), with bright purple flowers. Close by a Cryptomeria japonica towers seventy feet high, but is clothed with branches to the ground; near it stands an equally fine Abies nobilis var. glauca.

On the far bank of a small stream stands what must surely be the finest specimen of Sciadopitys verticillata in Europe; it is about fifty feet high, with horizontal branches reaching down to the ground, and perfectly symmetrical at the top. The lowest branches are about fifteen feet long, and the girth of the trunk, at man's height, is about four feet. The needles are in perfect whorls and measure about six inches long. This tree bears cones every year but I was never able to get seeds to germinate.

Perhaps the greatest glory of Monserrate is its collection of Coniferous trees—fine in regard to their great size rather than the extent of varieties. The most noticeable are certainly the Araucarias. There are two examples of Araucaria Bidwillii, one of which is eighty feet high (Fig. 42), thirty feet in girth at the base, and a perfect specimen. It bears cones about the size of a half-bushel basket every year, and a large percentage of the seeds are fertile, but take nearly two years to germinate. Standing on the big lawn is a giant A. excelsa, about ninety feet high, with its lower branches covering the ground about thirty feet around the trunk. It also bears fertile seeds every year. There is a small A. Cunninghamii, still a young plant, and a very fine A. Cookii in another garden belonging to Monserrate. There are three fine Kauri Pines (Agathis australis), only one of which bears cones, which do not, however, contain fertile seeds. Cryptomerias are well represented by several noble trees. C. japonica var. Lobbii stands in a good position at the top of the lawn and is very conspicuous. I have taken some good plants from this tree as the lower branches have rooted and established themselves. There is also a grand C. j. var. elegans in the Rose garden. On the lawn, too, are fine examples of Cedrus Deodara and C. atlantica var. glauca, whose cones give numbers of fertile seeds. Abies Nordmanniana and A. Webbiana are also on the lawn, and are very beautiful trees. In a deep dell, through which flows a small stream, Pinus Montezumae is a striking object, with its dense heads of long, soft, pendulous needles; while P. Ayacahuite, with its large, loose cones, and P. patula make a fine group. A group of Pinus insignis, on a slight rise of ground, is a magnificent sight; the trees are each about 150 feet high, and the largest has a girth of forty feet. Pinus canariensis is of a finer texture, and stands near a giant Eucalyptus viminalis. Sequoia gigantea does not seem to like the salt breezes from the near Atlantic and is only represented by a small plant; but the Redwood, S. sempervirens, does well, as does its neighbour, Thuya gigantea (plicata).

Pinus maritima grows wild on the serra, and is commonly used for rough timber. Turpentine is also obtained from it. Pinus Pinea is also plentiful and forms fine belts of timber trees in suitable situations. Taxodium distichum is beautiful in the autumn with its golden-bronze foliage, and also in the spring, with the tender green of its young leaves. There is also a good specimen of T. d. var. mucronatum, overlooking a small ornamental lake. Cupressus of various species and varieties are abundant, the most common being C. macrocarpa, in many varieties; and there are large specimens of C. lusitanica, especially in an avenue near the entrance gate.

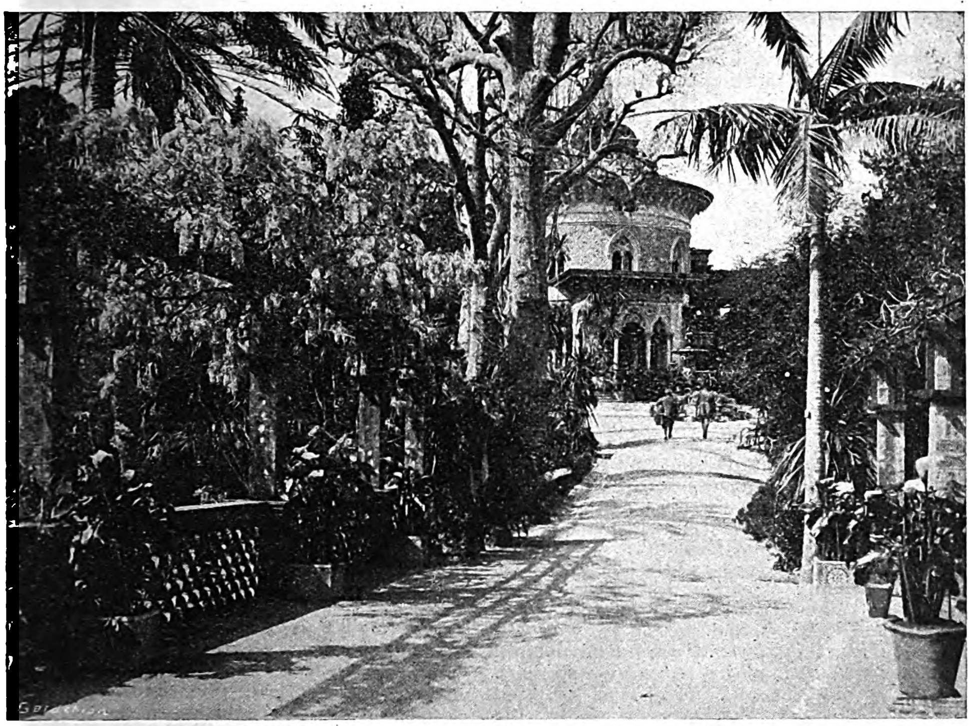

FIG. 44.—MONSERRATE: THE ROMAN CAUSEWAY LEADING TO THE PALACIO.

Near there, too, is a large Pinus longifolia, which is almost deciduous in habit, the needles drying up in the autumn but falling only when the new growth appears in spring. It is a very striking tree, with light-coloured bark, and long, pendulous needles.

On the same lawn as this is a pergola of Cork Oak branches, covered with Wistaria multijuga, both the blue and white varieties, many of the racemes of flowers being nearly a yard long. Some fine examples of Cedrus libanotica border the lawn close by, and in a corner near the carriage drive is a patriarchal Cork Oak, whose long, thick branches are almost covered by the dainty Hare's-foot Fern (Davallia canariensis).

By the side of a large lawn a goodly collection of Magnolias includes M. macrophylla, fifty feet high; M. Campbellii; M. conspicua, M. Soulangiana, M. discolor and several hybrids and varieties. Magnolia grandiflora forms a short avenue of magnificent trees seventy feet high, and fully foliaged to the ground. This avenue affords a superb vista from a Wistaria-covered pergola above a large, old water-tank, on to the lakes far below, and, beyond, up again to the rugged skyline of the distant, rocky serra. There is also the quaint little Magnolia (Michelia) fuscata, with tiny, brownish-purple blossoms, and a perfume like ripe Apples.

Australian plants are represented by large specimens of Grevillea robusta, trees of seventy or more feet high; Metrosideros tomentosa, in huge masses of silvery-grey foliage, fifty feet high and as much through, covered in May with masses of deep red flowers, like bundles of silk threads, and with tangles of adventitious roots almost from the topmost branches; and M. robusta, with small Myrtle-like leaves, represented by very large bushes, which when in flower in the spring are very beautiful.

There are, too, some very large Eucalyptus—one is stated to be the first of its kind planted in Portugal—and two particularly fine specimens of E. Globulus with boles of fifty feet in girth near the ground, and rising sixty feet to the lowest branches, with straight and perfect trunks. Their full height is 135 feet.

Banksia integrifolia, Eugenia australis, E. Jambos, Theophrasta imperialis, a very fine plant; Stenocarpus Cunninghamii, with curious red and yellow flowers borne in winter; Inga (Calliandra) pulcherrima, and many other beautiful and interesting trees are to be seen, while the Mimosa thrives everywhere, where it can be left alone! Gardenias grow freely out-of-doors and flower in the summer. Bignonia grandiflora grows luxuriantly on a terrace wall by the Palacio; while Bignonia buccinatoria almost covers a giant Goa Cedar, making a beautiful display with its large, bright red flowers that hang in festoons from the branches. Bignonia biflora, with large, lavender-coloured flowers, and Tecoma jasminoides, straggling over some old Oaks, also produce a bright effect in the hot days of August and September. Thunbergia grandiflora grows well on a terrace wall and flowers profusely, its large, light blue, flat flowers showing up well against the dark foliage.

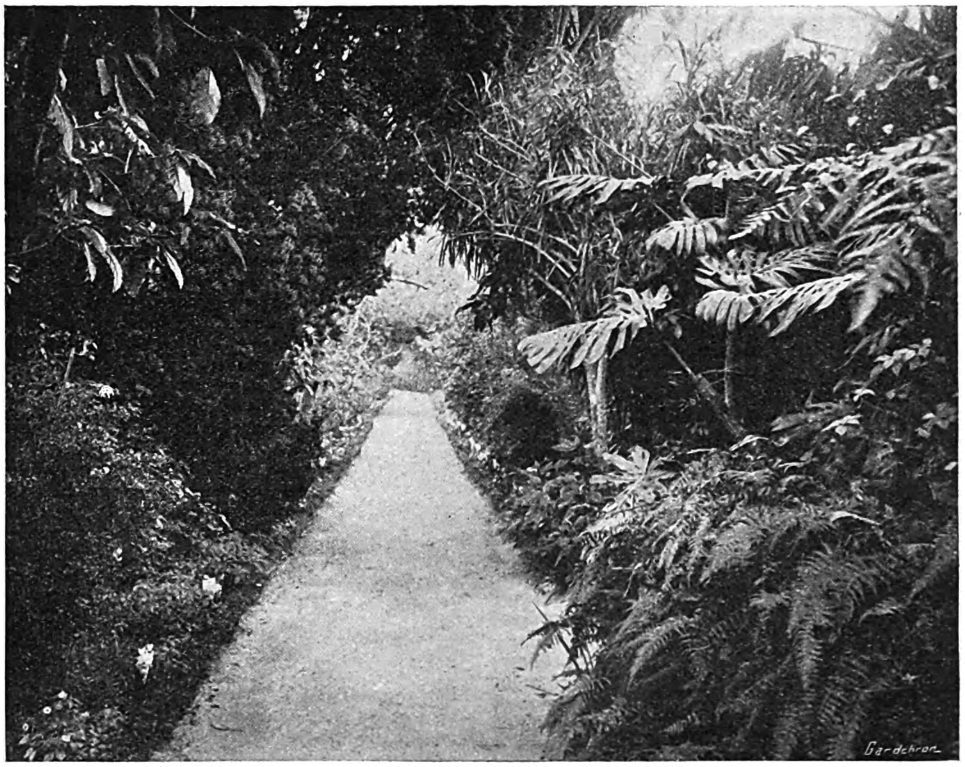

FIG. 45.—MONSERRATE: THE TANK WALK.

The lawns are one of the glories of Monserrate (Fig. 43), as they are the only permanent lawns in the country, and have existed since they were sown sixty or more years ago. They cover about twenty acres and make a fine setting for some of the trees already noted, in addition to large groups of Leptospermums and other Australian plants (Fig. 46), and blue, pink and white Hydrangeas.

The lakes are very charming, as in and around them are collections of various plants. The Papyrus grows freely, as does the smaller Cyperus alternifolius. Nymphaeas cover the water except for a few lanes kept clear by the swans (Fig. 41), while clumps of Nelumbiums stand up boldly and the Aponogeton pushes its dark green leaves and pure white flowers out from the shady sides. Around the edges are groups of Hedychium coronarium, Escallonias, Gunneras, Richardia africana, Iris laevigata, etc. Hedychium Gardnerianum grows practically wild, flowering freely everywhere along the water courses and near the waterfalls.

Yuccas, Agaves and Furcraeas are represented by many good specimens on the lawns and mixed with other plants. Agave Salmiana and A. Frauzosini are particularly fine. Doryanthes Palmeri grows well in large groups; and D. excelsa makes a very striking plant when it is in flower, "like a bowl of flowers," as described by a visitor who wanted to know its name. Cycads are represented by fine plants of Dioon edule, Encephalartos Lehmannii, E. villosum, E. horridus, Cycas revoluta, C. circinalis, Macrozamia spiralis and many other species. On the lawn, standing alone, is a magnificent plant of Macrozamia Macleayi, with a trunk three feet high, two feet thick, and with three large branches, each bearing broad, pinnate, glossy, dark-green leaves six to eight feet long.

Dracaena Draco grows well in a very hot part of the garden, where is, also, a fine group of Yucca Desmetiana (Fig. 47) one plant of which flowered for the first time last year. Tacsonia manicata forms great wreaths of bright scarlet flowers among the branches of some old Cork

Oaks, and among the topmost branches of some very tall Cupressus lusitanica. A large plant of Aloe supralaevis is almost hidden by a huge bush of A. arborescens, which is a glory when hundreds of flower spikes appear on it in early spring; while towering above this is a group of Strelitzia Augusta and Jacaranda ovalifolia.

Palms are very numerous, and mention of only a few of the best must suffice: Cocos flexuosa, C. Romanzoffiana, Washingtonia robusta, the tallest Palm in the garden, about seventy feet high; Kentia Belmoreana, K. Fosteriana, with trunks twenty-five feet high; Phoenix canariensis, P. dactylifera, P. reclinata, with seven well-furnished trunks from one root; Brahea Roezlii, Areca Baueri, A. sapida, Jubaea spectabilis, Seaforthia elegans, Sabal Blackburniana, and Sabal umbraculifera.

The many species and varieties of plants in the garden and serra are almost bewildering. from the huge Quercus Phellos (Willow Oak), the fine and rather rare Q. lusitanica, and the tall Q. Ilex, to the small, low-growing Q. coccifera, whose galls are used for tanning Morocco leather. This grows plentifully here, as does the tall Q. Ballota, which bears the "sweet" or edible acorn. Large groups of Rhododendrons and Azaleas, and Camellias of many species and varieties, form masses of colour in every available corner, and even overflow on to the lawns; and there is a large dell completely filled with Rhododendrons, which, rising up the steep mountain side, join and then mix with the grey, old Cork Oak trees.

In the old stable yard is a fine collection of various plants, including Erythrina caffra, E. Crista-galli, Callistemon rigidum, Citrus trifoliata, Nolina curvifolia, Chamaedorea elatior, etc. The front of the old stable itself is covered with Bougainvillea glabra (with a stem about eighteen inches thick at the base), which appears to be a solid wall of purplish-pink flowers in the late summer. The other walls are covered with Plumbago capensis and Holboellia latifolia; and a small pergola close by is covered with Hexacentris coccinea, that has long racemes of reddish-brown flowers at Christmas time.

Together, with all this wealth of beauty and interest within, there are also many fine views and charming vistas to be obtained from the garden and terraces on to the country below and around. To the westward lies the broad, low valley of Collares, stretching to the sea four miles away, between hillsides covered with vineyards which spread out on either side so far as the eye can see. Beyond, to the horizon, spreads the Atlantic. To the north and east, magnificent views stretch over vineyards and hills and valleys, to Mafra, and to the mountains beyond, to the hills of the famous lines of Torres Vedras, which Wellington fortified against the French armies in 1805, to protect Lisbon and the last remnant of Portugal for the Portuguese. Above the garden, to the south and east, rise the serras, where the water is captured and led into two large, picturesque lakes which supply the gardens with the large amount of water required during the long drought in the heat of summer, and of which the overflow forms the waterfall and cascades in the ravine below. The serras are heavily wooded, but their chief charm lies in the richness of their natural flora.

The upper serras are formed of huge "tors" of granite boulders loosely piled up, on and between which many beautiful wild flowers grow; and all down the steep mountain side, to the famous "Rock of Lisbon" (Cabo di Roca), eight miles away, is filled with glorious colours and wonderful scent; while on the rocks around the lighthouse—the most westerly in Europe—there is a perfect carpet of flowers of many colours and many kinds that from a little distance appears like a beautiful mosaic of the richest colouring in the clear air and golden sunshine of Portugal, with the steep, dark brown cliffs above and the sparkling blue of the Atlantic far below.

Cintra is very picturesque, and is noted for the beauty of its surroundings. There are many gardens, some very old, shady and mysterious, others of great beauty and full of interest; fine timber forests spread along the steep, craggy mountain-sides. Cintra has been praised for many centuries; Byron described its beauty in "Childe Harold," at least some portions of which were written at Monserrate, when it was little better than a ruin. The place was bought from the Portuguese owners about seventy years ago by the late Sir Francis Cook, grandfather of the present owner, who rebuilt the Palacio on the old foundations, and decorated it lavishly in the Moorish style, and laid out and planted the famous gardens, with the help of noted botanists, travellers and English gardeners from Kew. It is a great achievement, and vies with only one other garden of the same kind that I know—La Mortola.

The gardens are visited by thousands of tourists every year, and often tourists from among passengers on steamers calling at Lisbon for a few hours take the opportunity to go out by motor-car, or to Cintra by train, and thence by car, to pay it a visit. *W. O.*

THE CULTIVATION OF NEW ZEALAND PLANTS IN BRITAIN.*

During the summer and autumn of this year (1928), I have been studying the cultivation of New Zealand plants in Britain. My observations have been made in the south-east, south, south-west and north of England, Scotland, the Scilly Isles, Channel Isles and the Isle of Wight. In pursuit of my objective, I have made enquiries in private gardens, large and small, nurserymen's gardens, and public gardens and parks, and have kept an eye upon the ornamental plantations in such places as railway stations, zoos, and sea-fronts. I have thus amassed a great amount of information much too big to be given in any detail in an account of this kind. Only an outline of the subject is here attempted.

Gardens Visited.

Public Gardens: Cambridge University Botanic Gardens; Royal Horticultural Gardens, Wisley, Surrey; Royal Botanic Gardens, Kew; Botanical Garden, Edinburgh.

Private Gardens: Wakehurst Place, Sussex (Mr. Loder); Camla, East Grinstead, Sussex (Mr. Millard); Mr. Ingwerson's, East Grinstead; Ludgvan Rectory, Cornwall (Rev. A. Boscawen); Tresco Abbey, Isles of Scilly (Major Dorrien Smith); Icomb Place, Gloucestershire (Captain Simpson Hayward); Hidcote Manor, Gloucestershire (Major Johnson); Aldenham House, Elstree, Herts. (Hon. Vicary Gibbs).

Nursery Gardens: Mr. De Putron's, Guernsey, and many others.

Public Parks, etc.: At Edinburgh, York, Leeds, Bristol, Southsea, Weymouth, Winchester, Penzance, Dorchester, Isle of Wight, different parts of London, and many other places.

It was not, of course, possible for me to visit all the gardens where our plants are grown. I missed, for instance, Logan, in western Scotland, and Abbotsbury, in Dorset, and many others of which I generally heard too late; yet I think that there can hardly be many (if any) New Zealand plants in these places which I did not see elsewhere. I am under very great obligations to many owners of private gardens and to the authorities at Kew and Edinburgh for the assistance which they gave me in my work. In every case I met with kindness, hospitality, expert guidance, and a wonderful enthusiasm, and I here take the opportunity to express my great gratitude to these kind friends, one and all.

Climate.

The climate of Great Britain is sufficiently like that of New Zealand to make the cultivation of a great part of our flora at least possible, if not always easy. As with us, the west is the wetter and warmer side; the east and south-east are comparatively dry and cold—too cold for many of our best plants. In most of the places I visited in the south-west, and in the Islands, the rainfall is about thirty-five inches annually. It is so low as twenty-four inches in the vicinity of London, and twenty inches in Edinburgh.

The incidence of frost varies extremely. I made enquiries in every garden I saw, with very curious results. In the Scilly Isles frost is "practically unknown"; in Guernsey they expect from 4° to 6°, but in 1927-8 had 16°; at Ludgvan, near Penzance (Cornwall) 12° is not uncommon; in Sussex gardens, well inland, they had 26° last winter; at Aldenham House, north of London, 20° is to be looked for in any year, and in 1895 a frost of 3° below zero was recorded; at Edinburgh from 14° to 16° is usual, and 20° has been experienced. The unusually severe winter of 1927-8 gave me a good opportunity for my studies, since all our plants had been put to a tremendous test. The mere intensity of the cold had most serious effects. At Wakehurst, in Sussex, all the Celmisias out-of-doors were killed, while at East Grinstead, not far off, they had hardly suffered at all. At Wakehurst also a large Hoheria populnea had been killed outright; Sophora tetraptera had been cut at the top, as had Panax arborea, Cordyline australis and Coriaria ruscifolia. A fine specimen of Olearia semidentata had perished. (On the other hand, Arthropodium cirrhatum, which is not hardy in Christchurch, had weathered this winter, growing close to a wall, facing west; and this plant sends up flowers to a height of four feet!) In 1895, all the New Zealand plants and shrubs were killed, even such Spartans as Olearia Haastii, at Aldenham House.

The British gardener has other enemies besides low temperatures. In the Scilly Isles heavy gales and salt spray are very destructive; in all English gardens late frosts, coming after the sap has risen, are apt to do great damage; at Aldenham House, for instance, Gaya Lyallii, after weathering the terrific winter, was killed by a frost of 14° in May of this year. At Edinburgh, where the climate more nearly approaches that of Christchurch, bitter, dry, east winds in March and April are very deadly, and this is thought to be the reason why Cordyline australis (Cabbage Tree) will not flower, although it lives, out-of-doors there.

The main result of these climatic variations is that most New Zealand plants and trees can be grown out-of-doors in the far west; in the Scilly Isles our soft North Island trees and shrubs flourish amazingly. Pohutukawas, for example, and other Ratas, Nikau Palms, all the Pittosporums, Clianthus, Rhabdothamnus, Cordyline indivisa and C. Banksii, the Kauri, the Puka, the Whau, the Puriri, and the Karaka—all these grow and most of them seed themselves profusely. In Cornwall, Devon, parts of Somerset, Dorset and Hampshire, and in the Islands, we see thousands of Cabbage Trees and vast quantities of Flax (Phormium tenax), and the favourite hedge plant is a hybrid New Zealand Veronica. Alpines do not do so well in the west. The climate is generally too dry for the "Mt. Cook Lily" (Ranunculus Lyallii), yet it flowers and thrives in Edinburgh; some people weep and wring their hands over this splendid plant which resists all their efforts to flower it; others would give their souls to be able to grow the Vegetable Sheep (Raoulia eximia) which, I gather, no British gardener has yet succeeded in doing. Our hardier plants and shrubs, such as Acaena, some Olearias and Senecios, are grown everywhere, as will appear presently. On the whole, I think that Edinburgh is the place which most closely resembles the South Island of New Zealand (eastern side) in respect of rainfall, frost and general climatic conditions, and certainly, for this and other reasons, it is here that the visitor finds the best all-round representative collection of the plants of New Zealand, while, in respect of the North Island plants in general, and the forest trees in particular, the Tresco Abbey plantations and gardens easily surpass all other collections.

Methods of Importation.

Several of the growers of New Zealand plants have visited the country and brought back plants or seeds with them (*e.g.*, Major Dorrien Smith and Captain Simpson Hayward), and this is the only quite satisfactory method of importing living plants; the owner can look after them himself on the voyage, see that they are properly stored, and get them away from the docks

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*By Professor Arnold Wall, Canterbury College, Christchurch, N.Z. Reprinted from *The Press*.

without delay. Even when they are put in charge of someone on the ship delays at this end are apt to be fatal. And on one occasion, a whole case of plants was destroyed, though in the owner's charge, by a well-meaning deck-hand who applied his hose (of salt water) to the whole lot! Many plants are sent to order by nurserymen in New Zealand. I saw one such consignment (to Mr. Loder) and nearly all the plants had perished—probably owing to careless or inefficient packing. I am assured by one of the most sucessful growers that the only satisfactory method is by seed. The imported plants, while they withstand the change of season surprisingly well, never establish themselves quite so happily as when they start fresh from the seed over here. Many people complain, however, that the seeds sent to them from New Zealand do not germinate at all, or only after an interval of perhaps two years. Major Dorrien Smith, who has had great experience, both in growing plants brought over by himself, and in growing from seeds, assured me that seeds, especially those of any Composite plant, cannot be relied upon to germinate here, unless they are packed in dry sand and in airtight tins.

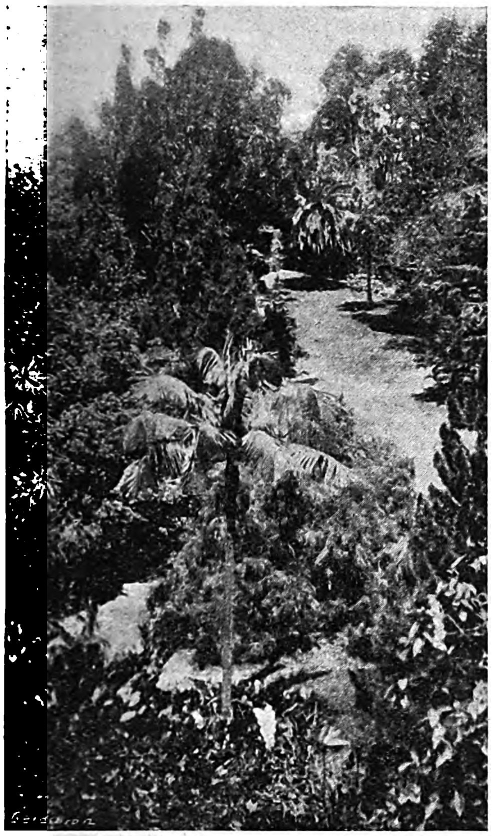

FIG. 46.—MONSERRATE: AUSTRALIAN PLANTS AND SEAFORTHIA ELEGANS.

English growers ought by now to know a great deal about the matter, as some of our trees and shrubs have been cultivated in Britain for a very long time. Plenty were sent (or brought) to Tresco Abbey (Scilly Isles) in the 'sixties and 'seventies, and are now very large trees, while others were introduced there from Kew as early as 1847. It would be interesting to know whether any of our plants were grown in the eighteenth century as a result of Cook's and other early voyages. Flax (Phormium) was certainly grown at Bordeaux by 1790. I have sometimes been asked whether it might be possible to grow our Flax commercially. I thought not, and am told that one Irish peer has tried it, unsuccessfully, having planted "a whole hillside" with it. Naturally, if the thing could be done at all, swampy ground would have to be chosen.

Plants in General Cultivation.

(a) South and south-west and Islands:—As already noted, the visitor to Cornwall, Devon, and the south-west coast, will see thousands of Cabbage Trees (here always called "Dracaenas") and great quantities of Flax (Phormium) everywhere. The commonest garden hedge plant of Cornwall is a hybrid New Zealand Veronica. Griselinia littoralis is very frequent in all sorts of gardens, public and private, and I have also seen quite a lot of Olearia nitida (more than one form), Piper excelsum, Olearia Forsteri, O. macrodonta, Dicksonia (Tree Fern), Sophora and various hybrid Veronicas. Phormium is supposed to be tender, but it grows well (not flowering, however) at Aldenham. According to Robinson (the *English Flower Garden*) the Veronicas are generally not quite hardy, except V. Traversii, but this is not at all borne out by my experience. Senecio laxifolius is much grown.

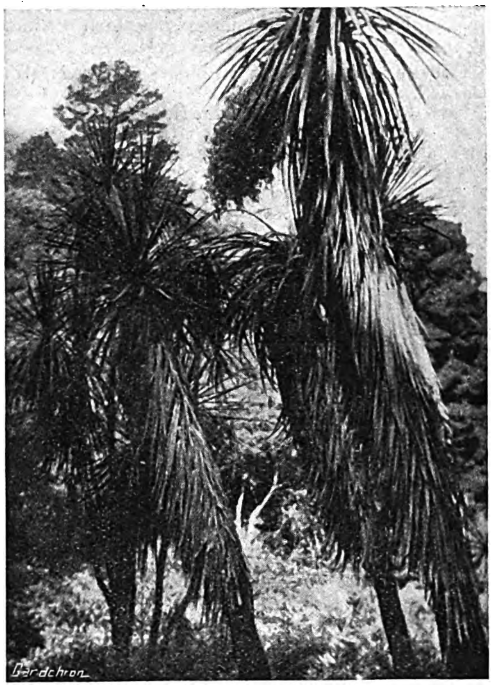

FIG. 47.—MONSERRATE: YUCCA DESMETIANA.

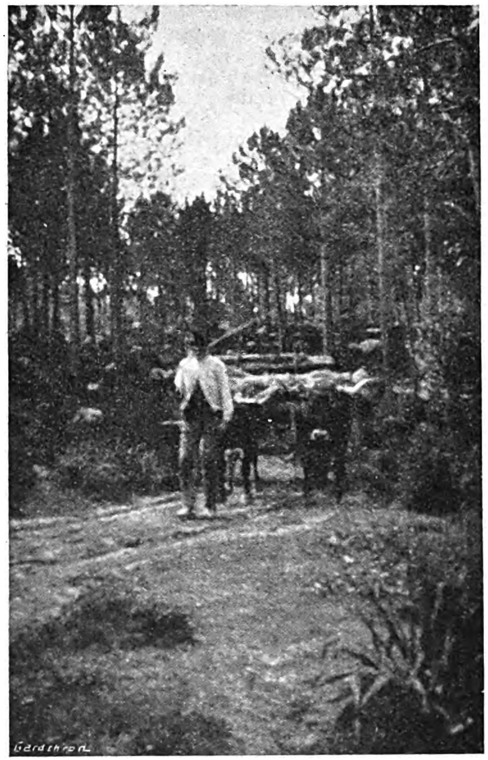

FIG. 48.—MONSERRATE: OX-CART IN THE UPPER SERRAS. (see p. 90).

Those who are interested in this district and its gardens will find an admirable guide in "Some New Zealand Trees and Shrubs in Cornish Gardens," published in the *Journal* of the Royal Horticultural Society in 1923, by the Rev. A. Boscawen. The photographic illustrations are excellent and most instructive.

I may add that I saw plenty of Cabbage Trees and Flax in Naples, Rome and elsewhere in Italy, and observed with some amusement that whenever the symbolic she-wolf which lives in a cage on the Capitol at Rome looks out of her back door she can see only a large clump of Phormium tenax.

(b) Britain in General.—The two commonest of our plants in Britain are Veronica Traversii and Olearia Haastii. For example, I noted this Olearia in Kensington Gardens and elsewhere in London; in the public gardens in Princes Street, Edinburgh; in the Borough Gardens at Dorchester; in Durham Cathedral Close; in the grounds of Camden House, Chislehurst, Kent, where the dethroned Emperor Napoleon lived for a time; at Balquhidder Railway Station and at Ballachulish in the western highlands; in Victor Hugo's garden in Germany—after which I kept no count of it. Everywhere this plant blooms profusely, makes a splendid show and is a great favourite; most nurserymen stock it. After these two, perhaps the most universally grown plants are Cassinia fulvida, various Veronicas, particularly V. buxifolia, V. pinguifolia, V. cupressoides, and V. Hectori; Acaena inermis, A. Buchanani and others in rock gardens; Raoulia australis; and Muehlenbeckia complexa, which last was a great surprise to me as we hardly think of it as an ornamental plant in New Zealand. There is plenty of this in the Embankment Gardens, near Charing Cross Station, and at Tresco Abbey it has grown, as a climber, to an immense and almost incredible size. Other plants which I have seen pretty often are: Aciphylla Colensoi and A. squarrosa; Hypolepis millefolium (curiously called New Zealand Bracken); Veronica Hulkeana (not so frequent as one would expect); Senecio Monroi (or S. compactus) and S. Greyii; Pittosporum crassifolium; Veronica angustifolia, Cotula squalida; Nertera depressa; Pittosporum eugenioides and P. tenuifolium and Olearia Forsteri.

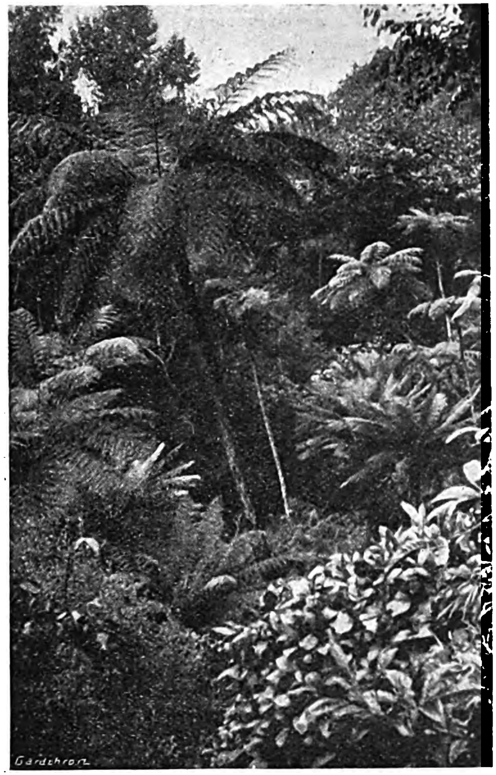

FIG. 49.—MONSERRATE: THE NOOK.

(*To be continued.*)

THE GENUS PRIMULA.

(*Continued from p.* 74).

PENDULIFLORA (Franch.). Pendulous-flowered P. (Soldanelloidae.)

A DECIDUOUS sub-species of P. nutans (Fr.), of robust, tufted habit, with oval-oblong leaves one-and-a-half inch to two-and-a-half inches long, gradually tapering into a narrow, winged stalk; margins furnished with remote, blunt teeth and edged with white hairs; both surfaces covered with white hairs, especially on the nerves. Flower stem four to eight inches tall, erect, slender, smooth, or covered with white, meal-producing hairs. Flowers in a rather dense head, drooping, of an intense blue-violet or deep blue colour, fragrant. Corolla about five-eighths-of-an-inch across; lobes broadly heart-shaped, notched; tube cylindric, about three-quarters-of-an-inch long, including the corolla. Flowers in September. Not in cultivation.

Grows in damp mountain pastures on Mount Ma-eul-Chan, in north-western Yunnan, at 10,500 feet above sea-level.

Culture: Good fibrous loam and peat, with protection from damp in winter, are indicated.

PETIOLARIS (Wall). Himalayan Primrose (Petiolaris-sonchifolia.)

A beautiful perennial species of densely tufted habit with usually more or less elliptic leaves, frequently tapering to winged stalks, in all from two to nine inches long; margins furnished with sharp teeth; both surfaces rugose and non-mealy. Flower stem obsolete; flowers numerous, on slender stalks springing from the centres of the rosettes. Corolla pale purple, pink or white, three-quarters- to one-and-a-quarter inch across, flat, egg-shaped, bifid or edged with several sharp teeth at the tip; tube funnel-shaped, longer than the calyx. Flowers in autumn and winter.

Grows in damp, cool situations in the Himalayas from Simla to Bhutan, at from 4,000 to 12,000 feet above sea-level.

Culture: Good rich loam and Oak or Beech leaf-soil, in a cool, half-shady spot, should suit it.

PETITMENGINI (Bonati). Petitmengin's P. (Obconica.)

An apparently beautiful, deciduous, perennial plant with a fairly woody rootstock and tufts of oval-oblong, blunt, membranous leaves from two to three inches long, heart-shaped at the base, borne on slender stalks two to three inches long, clothed with long hairs; margins entire, or obscurely lobed; both surfaces densely clothed with fine hairs, those on the underside being the longer. Flower stems one to two, tall, erect, hollow, downy, bearing a terminal umbel of three to five rose-coloured flowers on slender stalks of unequal length. Corolla concave, about three-quarters-of-an-inch across, divided into five rounded, blunt, cleft lobes; tube cylindrical, about three-eighths-of-an-inch long, twice as long as the calyx.

Grows in the clefts and hollows of shady limestone cliffs near Setzeoudy, in the region of Pinchwan, Yunnan, western China.

Culture: As for P. obconica, of which it is considered a sub-species.

PETROCHARIS (Pax et K. Hoffm.). Imbricate P. (Minutissimae.)

A very dwarf, densely tufted perennial, forming wide patches composed of rosettes of imbricated leaves three-eighths- to five-eighths-of-an-inch long when fully developed, with elliptic, pointed blades, usually tapering somewhat abruptly into a rather broad stalk, or at times nearly stalkless; margins entire, or furnished with broad, obscure, blunt teeth or small lobes; both surfaces slightly downy and non-mealy. Flower stem about one inch tall, immersed in the foliage and bearing from one to three terminal, rose-coloured blossoms on slender stalks under one-eighth-of-an-inch long. Corolla about a quarter-of-an-inch across, with broadly heart-shaped lobes; tube cylindrical below, dilated upwards, about a quarter-of-an-inch long. Flowers in April and May. Not in cultivation.

Grows in open situations among dwarf herbage on the mountains near Wen-tschuan-hisen, in the Province of Szechuan, western China, at about 13,000 feet above sea level.

Culture: As for P. minutissima. *A. W. Darnell.*

(*To be continued*).

GARDEN MANURES FOR AUGUST.

WHILE plant nutrition is a more or less continuous process, and the absorption of food from the soil necessitates the preparation of further supplies to maintain this continuity, August, the month of ripening crops, cannot be regarded as a time when intensive manuring on a large scale calls for attention. For some crops and under certain conditions of cultivation, circumstances may render it advisable to use some quick-acting fertiliser, such as nitrate of potash, to help finish a fruit crop; or nitrate of soda to maintain growth in a green crop; applications of liquid manure to various growing vegetable crops; or even a sprinkling of superphosphate or bone-meal to ground cleared of summer crops and being prepared for the main planting of Cabbages; but it may be stated that this month calls more for the study of the future needs of the soils under our management than for the immediate application of fertilisers. It is true that many pot plants are just at that stage of development when, in preparation for winter flowering, liberal applications of manure will be of the utmost benefit, but growers of pot plants are always alive to this necessity, and many of their cultures have not yet reached opulent growth, whereas the generality of outside crops are approaching maturity.

It may, therefore, be profitable to consider the value and uses of some of the less discussed elemental plant foods, and sulphur as a plant-nutrition agent opens up interesting ground, for this element has perhaps a more important influence on crop production than is usually assigned to it.

Sulphur affects plant nutrition in three ways; directly as a plant food, and indirectly as an assistant food carrier, and as a combatant of various plant diseases which restrict the capability of the plant to absorb food. As an assistant food carrier its work is well exemplified in sulphate of ammonia and sulphate of potash. That it possesses unusual fungicidal properties is also well-known, and most of the standard fungicides have sulphur as a base, but its action as a fungicide is not completely uniform and may depend on other factors. Its effectiveness in practical use is influenced by its state of division, and for the successful control of mildew it is an important point that the particles of sulphur should be sufficiently small to remain in aerial suspension for a considerable length of time, otherwise its tendency is to drop quickly to the ground and not collect gradually on the leaf surfaces under treatment. Again, its action is more pronounced in high temperatures than in low temperatures, and strong sunlight appears also to have an accelerating effect. Many users of lime-sulphur solutions have observed lasting results following its application, and it is not impossible that this may be due to the more intensive action of sulphur under strong sunlight.

But apart from the final action of sulphur or sulphur compounds as fungicides, there is some evidence to show that there may be some sulphur residues which serve the purpose of direct food supplies to the plant, or assist in their preparation in the soil. French growers have found that if fine sulphur to the extent of from 100 kg. to 200 kg. per hectare (=80 lbs. to 160 lbs. per acre) is incorporated with the soil, productivity is sensibly increased; but whereas its action is insignificant on a sterilised soil, on a non-sterilised soil its action is very marked. One can deduce from this that sulphur has a beneficial influence on the bacteria of the soil, augmenting the quantity of nitrogen assimilable by the activity it communicates to the ammonia-creating bacteria and nitrifying ferments.

It is well-known that this action can only manifest itself in soils charged with the humus that is so necessary for the normal development of bacteria. On the other hand, by means of bacterial action, sulphur can oxidise itself in the soil and become sulphate of ammonia. Under the influence of certain anaerobic microbes sulphate of ammonia can transform itself into hydrogen and sulphuric acid; it acts then as a partial steriliser of the soil, defending the useful bacteria from their natural enemies the protozoa. But sulphate of ammonia acts differently, according to the soil in which it is found; it can act by itself if the soil is poor in sulphate and if the soil is calcareous; in combining with calcium, it augments the proportion of assimilable potash; but if the soil is very deficient in calcium it forms soluble salts with manganese, potash, iron and magnesia. Sulphate of ammonia, coming from the oxidation of sulphur, acts also on the mineral phosphates and renders them soluble in water. If, nevertheless, the quantity of sulphur is exaggerated in a non-calcareous soil, the sulphate of ammonia formed turns the soil acid, to the detriment of vegetation.

In the environs of Villescresnes, Mandres, large tracts of Roses are grown in loam containing little calcium; the growers used large quantities of sulphur to combat fungus diseases until some of the areas became nearly unproductive. On analysis, it was found that the soil was intensely acid, and it was only by heavy dressings of lime that it was again made productive. Numerous experiments with sulphur have been made during the last few years. Dr. Dudisch, of Pontiers, recorded an increase of one hundred per cent. in the Potato crop when cut sets were powdered with sulphur, and the Comptoir Parisien has obtained excellent results in its field experiments at Sartrouville by employing sulphur in the cultivation of Spinach, Peas, Potatos, Cabbages, Onions and Carrots. The various phenomena of chemistry and biology appertaining to the action of sulphur have been studied in masterly fashion by Mon. Kayser, and there can be no doubt that this element may be called upon to render very great service to cultivation. *W. Auton.*

JAM MAKING AND FRUIT BOTTLING.

FOR the home preservation of fruits, it should be noted that all fruits to be preserved should be quite sound, and that, if a large quantity is to be handled, it should be graded into various sizes and the riper fruits put aside for jam- or jelly-making, and the rest used for bottling or canning.

For bottling, the condition of the fruits should be firm ripe, except in the case of Gooseberries, which are usually dealt with when quite under-ripe. All fruits should be bottled in syrup, as fruits bottled in water lose much of their flavour, and after a few months become bleached and unattractive. The syrup is made by dissolving 8 ozs. to 12 ozs. of sugar in each pint of water, bringing this solution to boiling point, and allowing it to cool before use.

Red and black varieties of Cherries are best for preserving. If bottled in water, the flavour of the stone becomes strong, and the flesh is tasteless and unattractive. For most varieties, a syrup, using 8 ozs. of sugar to a pint of water, is sufficient, but for the Morello Cherries 12 ozs. of sugar should be used. As most varieties of Cherries have a relatively low acidity, the temperature of the water in the steriliser should be raised slowly to 190°F., and maintained at this temperature for fifteen to thirty minutes. For Cherry jam, the best varieties to use are Morello and May Duke, and all or part of the fruit should be stoned. Small Cherry-stoners may be purchased at the ironmonger's for a few pence.

In regard to jam-making, after the usual preparation of the fruits, put them into a freshly-cleaned preserving pan. For hard fruits add sufficient water to start the cooking—about one pint to 10 lbs. of fruits is the average quantity. For soft fruits, add no water. Use white granulated sugar, allowing ¾ lb. to 1 lb. of sugar to each pound of fruits, the larger amount in the case of unripe fruits. First stir over a moderate heat until the texture is broken down. Then add sugar to the fruits and stir until all the sugar is dissolved. Then boil rapidly until the jam sets when tested. The preserving pan must be large enough to allow of rapid boiling without fear of boiling over. Stir to prevent burning. Test the jam frequently by placing a little on a cold plate. If, on cooling, the consistency is firm, the jam has boiled sufficiently. The more quickly the jam is boiled the better will be its flavour and colour. If the jam is boiled too long its settling properties are destroyed.

Pour then into heated jars and place waxed papers on the surface of the jam while it is hot. Lay a sheet of clean paper over all the pots to prevent dust and fungus spores settling, and when the jam is cold tie down tightly with parchment paper and store in a cool, dry place.

In the case of Raspberries and Strawberries, a small amount of citric or tartaric acid should be added in order to make the jam set more rapidly; say ½ oz. to every 8 lbs. of fruits. The acid should be dissolved carefully in a small amount of water and should be mixed thoroughly into the jam before the addition of the sugar. If acid fruit juice is used, about one pint should be added for every 4 lbs. of fruits. Jam may not keep if over-ripe fruits are used, or if less than ¾ lb. of white granulated sugar to each pint of fruits is used. It may not keep if it is insufficiently boiled, or if it is kept in a damp cupboard or in too warm a place.

HOME CORRESPONDENCE.

The Bulb Industry in Holland.—It seems to me that in your notice of Mr. E. H. Krelage's statement on the Dutch bulb trade (*The Gard. Chron.*, p. 356, Vol. LXXXV), justice is hardly done to the real facts. You imply that were English growers seriously to enter the field of bulb production, they might expect to produce a reasonable share of the 43,000,000 kilos of bulbs which formed the Dutch export in this article for 1928. You state quite truly that Darwin Tulips and Daffodils can be grown as well in this country as in Holland, that certain Dutch growers have settled in districts already pioneered by our own people, and that we take an honourable place as raisers of Daffodils. But all this does not prove that we can compete with the Dutch in the mass production of bulbs. To produce bulbs at a cheap rate, true to name, of even grade, and free from disease, is a great discipline. The bulb gardens of Haarlem, which are reclaimed from waste, are most costly to produce, and the only chance of success, —a competitive price—is to cultivate in the most efficient and economical manner possible. It is just here that the Dutch are incomparable. To put things into prepared ground in rows and take them out again when the proper moment arrives, and to do all the other things which bulb culture demands, fits to perfection the methodical genius of the Dutch. Moreover, have they not the acquired tradition and technique of three hundred years of experience in the bulb field? We are apt to forget what the Dutch have done. Where, eighty years ago, a decent Hyacinth bulb cost 5s., to-day we can get it for 6d., a result we owe to them. It is the reaction of the Dutchman to his land environment that counts—his relation to the soil. To live in and pay for making Holland, he must export, and this compels him to be adaptable; to find outside markets, and to produce at competitive prices what those markets require. If we changed countries with the Dutch lock, stock and barrel, it is to be expected that within five or ten years England would be exporting to Holland the 16,000,000 kilos of bulbs which at present go the other way. Whether this would continue is another matter. Residence in England might, in time, make the Dutchman easy-going. *F. W. Oliver.*

SOCIETIES.

ELSTREE AND DISTRICT.

July 20.—The exhibition of the above Society was held in Aldenham Park, Elstree, and was one of the best held under its auspices.

There were four groups of cut Roses, arranged on a space twelve feet by four feet. The exhibits of the three prize winners were all that could be desired. Messrs. Chaplin Bros., Ltd., Waltham Cross, won first prize and the Silver Challenge Cup with a superbly handsome group of high quality blooms charmingly arranged. There were masses of such standard sorts as W. E. Chaplin, Dame Edith Helen, Mrs. Henry Morse, Mrs. A. R. Barraclough, Golden Emblem, Los Angeles, Lady Inchiquin, Conqueror and Mrs. Henry Bowles. A good second was seen in the group of Messrs. R. Harkness and Co., Hitchin, who had many remarkably handsome blooms, but they lost in arrangement. Messrs. Frank Cant and Co., Ltd., Colchester, were placed third.

A new class for a decorated table of Empire fruits found only one entrant; this exhibit was arranged on a space ten feet by four feet. First prize was well won by Mr. W. H. Lees, Queen's Road, Watford, who staged superb Alicante, Canon Hall Muscat, Black Hamburgh and Gros Colmar Grapes, Australian examples of well-grown Apples, Kentish Cherries, Pears, West Indian Pineapples, and a host of other superb fruits that were much admired. A splendid innovation.

There were several classes for cut Roses, the principal class being for twelve Roses, distinct. Mr. H. F. Spicer, Hitchin, was first out of four competitors, showing good examples of George Dickson, Candeur Lyonnaise, Mrs. Henry Bowles, Mdlle. Louise Crette, Mrs. A. R. Barraclough, Mrs. G. Norwood, Mrs. Charles Lamplough and Dame Edith Helen. Mr. J. N. Hart, Little Heath, Potters Bar, was a good second, and Mr. W. Martineau, third.

For a bowl of Roses there were five entries. Mr. Hart was first with a pretty arrangement; Mr. H. E. Dunhill, Harpenden, second, and Mr. Spicer, third. In the class for a vase of Roses, Mr. Spicer was first; Mr. Hart, second, and Mr. Dunhill, third. Of the four entrants in the class for three vases of cut Roses, Mr. Spicer was a grand first, showing splendid examples of Mrs. C. Lamplough, Mrs. George Marriott and Dame Edith Helen. Mr. Hart was a close second, and Mr. R. C. Peake, Redbourn, third.

Sweet Peas are always a great feature at this show, the competitive classes running down the whole length of one side of the large tent. The chief class was for twelve distinct varieties, twenty sprays of each. First prize and the Silver Challenge Cup was won by S. Wallrock, Esq. (gr. Mr. M. Holloway), The Manor House, Stanmore, who showed Sweet Peas at their best. His varieties were Mrs. A. Searles, Crusader, Powerscourt, Gold Crest, Youth, Charming, Susan, Model, Grenadier, Magnet, Bluebell and Royal Mauve. Mrs. Carl Holmes (gr. Mr. W. Penton), The Node, Welwyn, who was second, had consistently good blooms of popular sorts; third prize was awarded to Mrs. H. E. Dunhill, last year's Cup winner. A smaller class for six vases of Sweet Peas produced five entrants. First prize was won by Mrs. Duveen, Broadway, Limpsfield, who had a superb exhibit; Mr. H. Pitt, Boxmoor, was a good second, and Mr. P. L. F. Cook, The Bell House, Hayes, third. The first prize in this class also secured a Challenge Cup. The six entrants in another class for six vases, distinct, and not more than twelve sprays of each variety, made a splendid display. Mr. Wallrock was again first, Mrs. Carl Holmes, second, and Mrs. H. E. Dunhill, third, all showing extremely well. Mrs. Dunhill was first in the class for a vase of pink Sweet Peas, and Mr. Wallrock first in the classes for one vase of white, crimson or scarlet, lavender, cerise, or scarlet-cerise, and cream, buff and ivory—an excellent record.

There were four entrants in the dinner table decoration class, confined to Sweet Peas. First prize was awarded to Mrs. Veitch, Cassiobury Drive, Watford, who used a rich orange coloured Sweet Pea effectively. A very dainty table secured second prize for Miss F. J. Jones, Watford. Another class in which the kind of flower used was left to the exhibitor's discretion brought forward so many as eight competitors. First prize was awarded to Miss F. E. Tutte, Cross Road, Bushey, for a decoration made up of Gypsophila elegans, pink Cornflowers, etc. A pretty table of Iceland Poppies secured second prize for Miss R. J. Stevens, Radlett, and, with Roses, Mrs. E. Carpenter, Kings Langley, was placed third.

There were many very interesting competitions, far too numerous for us to mention, but, generally, their character and quality were good.

This splendid show would be incomplete without one of those noteworthy exhibits of vegetables coming from the gardens of Aldenham House, in the name of the Hon. Vicary Gibbs, whose able gardener, Mr. Edwin Beckett, again excelled. There were about 250 dishes of vegetables of almost every conceivable kind arranged in most artistic fashion and in splendid form and condition, notwithstanding the trying season. Too much praise cannot be given to this exponent of high culture, and the awards of a Gold Medal, a Cup for the gardener and the thanks of the judges, were well merited.

The trade supported the show in excellent fashion. Messrs. L. R. Russell, Ltd., staged exotic plants in fine form, including a number of Water Lilies (Gold Medal); and Messrs. William Cutbush and Sons, clipped trees, Roses and herbaceous plants (Silver-gilt Medal). Silver Medals were awarded to Mr. W. A. Collier, Messrs. W. Kemp, Mr. Carlile, Mr. Amos Perry, Mr. J. H. Pemberton and Messrs. James Carter and Co.

Mr. W. J. Pritchard, the Hon. Secretary, merits praise for the excellence of the arrangements of the show.

HARROGATE SHOW.

The Horticultural Section of the Royal Show, held at Harrogate on July 9 and following days, under a dull sky which threatened rain, was a very successful event. The popularity of this show is most marked, and exhibits from all the leading trade growers combined to make it a greater success than ever. Princess Mary made a long stay, and closely examined the various exhibits in the two large marquees. From the time of the opening until the close the tents were crowded; in fact, so great was the crowd late in the afternoon of the first day that the visitors had to be admitted in relays.

Although the competitive classes were not numerous, the prizes were liberal, and the demand for space from trade growers was heavier than in previous years.

In class 1, for a group of miscellaneous plants in and out of bloom, Messrs. J. Cypher and Sons, Cheltenham, were first, with a delightful exhibit of well-coloured Codiaeums, Dracaenas and Thunias, Laelio-Cattleyas, Odontoglossums, Liliums and many other handsome plants. Mr. T. M. Petch, Great Horton, was second.

Messrs. Blackmore and Langdon were placed first for a collection of Delphiniums, and also for a group of tuberous Begonias, with flowers of exceedingly high quality and arranged in a most artistic manner.

Messrs. Maurice Prichard and Sons, Ltd., Christchurch, led for a group of aquatic plants; second, P. Gardiner, Craven Nurseries; third, Messrs. Bowell and Skarratt, Cheltenham. This was a most attractive and interesting class. For a collection of hardy perennials and cut blooms, Messrs. Bees, Ltd., were first, with a very artistic and representative exhibit; Messrs. Harkness and Sons, Bedale, being placed second; and the Gayborder Nurseries Melbourne, third; while for a collection of Lupins, Messrs. Harkness and Sons were first, and Messrs. J. F. Rashley and Co., second.

Messrs. C. Engelmann, Ltd., led for a collection of cut sprays of Carnations with blooms of fine quality; while Mr. Horace Lakeman, Thornton Heath, secured the premier award for a collection of border Carnations.

Messrs. R. Bolton and Son showed grand flowers in splendid condition in their first prize collection of Sweet Peas; while in the keenly contested class for a collection of cut Roses, Messrs. Wheatcroft Bros. were first; Mr. Charles Gregory, Chilwell, second; and Messrs. William Lowe and Sons, Beeston, third.

Medal Awards.

Large Gold Medals.—To Messrs. Allwood Bros., for Carnations; to Messrs. Sutton and Sons, for a marvellous exhibit of Sweet Peas; to Messrs. Alex. Dickson and Sons, for Roses and Sweet Peas, staged in great variety and of wonderful quality; to Messrs. Kent and Brydon, for formal garden; to Messrs. Backhouse Nurseries, Ltd., for a rock garden; to Messrs. Broadhead, for a rock garden; to Mr. H. Lakeman, for one of his wonderful exhibits of border Carnations; and to Studley College for a grand collection of fruits and vegetables.

Gold Medals.—To Messrs. Bees, Ltd., for Delphiniums; to Messrs. R. Bolton and Son, for Sweet Peas; to Mr. W. Brown, for Roses and herbaceous plants; to Messrs. Frank Cant and Co., for Roses; to Messrs. J. Forbes and Son, for Pentstemons, Carnations and other choice plants; to Messrs. Conways, Halifax, for a rock garden; to King's Acre Nurseries, Ltd., for pot fruit trees; to Mr. Thomas Robinson, for Roses; to Mr. Maxwell H. Hatcher, Rawdon, for Orchids; to Messrs. Maurice Prichard and Sons, Ltd., for alpines and other hardy flowers; and to Mr. George Marriott, for Roses.

Silver-gilt Medals.—To Messrs. Bakers, Messrs. Hewitt, Ltd., Messrs. Kelway and Son, Messrs. Laxton Bros., Messrs. Stuart Low and Co., Messrs. Artindale and Son, Messrs. Whitaker and Wilson, Messrs. B. Cant and Co., and to the Harrogate and District Horticultural Association.

Silver Medals.—To Messrs. G. Gibson and Co., Messrs. Jarman and Co., Messrs. William Lowe and Sons, Messrs. Maxwell and Beale, and to Messrs. Toogood and Sons.

ROYAL HORTICULTURAL.

July 30.—Although there was a small show at the new Horticultural Hall, Westminster, at this fortnightly meeting of the R.H.S., it was very interesting in the variety of good things on view. The principal feature was the magnificent Gold Medal exhibit of pot fruits, beyond which the Fruit and Vegetable Committee had little to require attention. There were two good exhibits of Orchids, and the Committee recommended two First Class Certificates and one Award of Merit to novelties. Seasonable flowers were shown in considerable variety, the chief subjects being herbaceous Phloxes, Sidalceas, Roses, Carnations and Gladioli. The Floral Committee recommended six Awards of Merit to novelties, and selected five other new varieties for trial at Wisley.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Prince Shimadzu, Mr. Fred J. Hanbury, Mr. A. Dye, Mr. E. R. Ashton, Mr. R. G. Thwaites, Mr. Fred K. Sander, Mr. A. McBean, Mr. T. Armstrong, Mr. Charles H. Curtis, Mr. S. Flory, Mr. J. Shill and Mr. H. G. Alexander.

First Class Certificates.

Miltonia gattonensis, Exbury var. (*M. Bleuana* × *M. Charlesworthii*).—A particularly lovely Orchid that has previously gained an Award of Merit, and was now shown in fine style, the plant carrying two spikes and a total of ten large and exquisitely beautiful flowers. The blooms are white with a golden disk that shades into the golden-brown of the base of the mask, and this in turn shades into a carmine-rose area beyond which a few carmine-rose and brown lines extend into the white area. Shown by Lionel de Rothschild, Esq. (Orchid Grower, Mr. B. Hills), Exbury, Southampton.

Laelio-Cattleya Sargon var. Vesuvius (*C. Hardyana* × *Laelio-Cattleya Lustre*).—This very handsome Orchid is probably the best of the numerous Sargon varieties, and belongs to the gloriosa class. The broad sepals and petals are rich, deep purplish-mauve with a few fine veins of deeper mauve. The broad lip is rich royal purple with old gold veins and brownish shading in the throat. The flowers are of splendid size and fine substance: Shown by Messrs. H. G. Alexander, Ltd.

Award of Merit.

Cattleya Gladiator (*C. Dowiana* × *C. Gladys*).—A distinct and striking hybrid with purplish petals, and sepals that are mottled with greenish-yellow on a rosy-purple ground. The lip has a purple and frilled apex and a wide golden area towards the base, edged with purple, and heavily veined with dark purplish-brown over the centre and in the throat. Shown by F. J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead.

Groups.

A dozen flowers of Laelio-Cattleya elegans on one spike was a leading feature in the group set up by Messrs. Sanders. This group also contained Stanhopea oculata with two pendant, fragrant spikes, Vanda coerulea, Phalaenopsis Rimestadiana, Odontonia brugensis, with two score of its mauve flowers, Dendrobium regium, Cattleya Hardyana and Cypripedium Godefroyae var. leucochilum.

Messrs. Charlesworth and Co. displayed a pretty group of Orchids and showed Dendrobium Dalhousianum, Sophro-Laelio-Cattleya Adonis, Odontioda Nola, Odontonia Laguna, Coelogyne Rumphi, Maxillaria venusta, Cattleya Hardyana, Cypripedium Curtisii, Oncidium Papilio and numerous fine spikes of brightly coloured Odontoglossum hybrids.

Floral Committee.

Present: Section A.—Mr. H. B. May (in the chair), Mr. J. F. McLeod, Mr. A. Turner, Mr. Courtney Page, Mr. G. Churcher, Mr. J. T. West, Mr. A. Vasey, Mr. Hugh Dickson, Mr. M. C. Allwood, Mr. W. B. Gingell, Mr. D. Ingamells, Mr. D. B. Crane, Mr. C. E. Pearson, Mr. G. W. Leak, Mr. W. Haskett and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. C. T. Musgrave (in the chair), Mr. G. Reuthe, Mr. E. A. Bowles, Mr. G. W. Baker, Mr. F. G. Preston, Mr. L. R. Russell, Mr. A. Bedford, Mr. T. W. Taylor, Lady Beatrix-Stanley, Mr. Mark Fenwick, Mr. E. H. Wilding, Mr. E. Marsden-Jones, Mr. T. Hay, Mr. Reginald Cory, Mr. W. B. Cranfield, Sir W. Lawrence, Bt., Mr. Clarence Elliott, Mr. George Yeld and Mr. N. K. Gould, Secretary.

Awards of Merit.

Allium flavum.—A graceful little species which was introduced from Italy in 1759, and is figured in *Bot. Mag.*, t. 1,330. The round stem and leaves are glaucous, and the small, pendulous, bell-shaped, yellow flowers are borne in graceful umbels. Shown by Mr. Amos Perry.

Campanula carpatica var. Chewton Joy.—A dwarf, compact variety which bears plenty of relatively large, widely-open, pale blue flowers which have silvery-white centres. Shown by Messrs. M. Prichard and Sons.

Gentiana Lagodechiana, Hanscombe variety.—A more vigorous variety of the Caucasian Gentian which is recommended for the rock garden. The flowers are large and dark blue, freely speckled and marked with white.

Gentiana Lagodechiana × *G. septemfida var. cordifolia*—The award to this desirable rock garden plant is given subject to its being named. In general appearance it is a much more robust and greatly improved G. septemfida. It produces larger, much more floriferous heads of brighter blue flowers which are less speckled. This, and the foregoing, was shown by C. T. Musgrave, Esq., Hascombe Place, Godalming.

Pentstemon Eatonii.—This admirable species was introduced from California in 1883. The lower leaves are broadly acuminate and of rich shining green colour. The rich crimson-scarlet flowers are borne in a long, graceful panicle. Shown by Mr. T. Hay, Hyde Park, London.

Tillandsia splendens var. major.—This handsome Bromeliad was shown as a Vriesia, but the plant appears identical with the figure in *Bot. Mag.*, t. 4,382, of Vriesia speciosa. a name which has since been changed to Tillandsia splendens. A very robust specimen of this stove Bromeliad was shown. The long, green leaves were marked with very dark chocolate and the central scape of vivid scarlet bracts was nearly two feet long. The small, solitary flowers were whitish. Shown by Messrs. Sander.

For Trial at Wisley.

Eschscholzia Double Carmine Queen.—A semi-double variety of rosy-carmine colour.

Eschscholzia Flambeau.—An uncommon and showy variety. The semi-double flowers are prettily crimped and are of fiery orange-scarlet colour, shot with gold. Both varieties were shown by D. W. Gardiner, Esq., Thornington, Colchester.

Hemerocallis hybrida var. George Yeld.—An uncommon Day Lily. The large flowers are of clear yellow colour in the centre, and brownish towards the margins. Shown by Mr. Amos Perry.

Phlox Mrs. Symons-Jeune.—A handsome spike of large, blush-pink flowers which have small, carmine centres.

Phlox Magna Charta.—This is a brighter counterpart of the foregoing. Both varieties were shown by Captain Symons-Jeune.

Groups.

At the far end of the hall a splendid group of herbaceous Phloxes was displayed by Messrs. H. J. Jones, Ltd. The principal varieties were Leo Schlageter, deep rose-pink; Daily Sketch, pink with carmine centre; C. Edwards, salmon-pink; Attraction, purple; Evelyn, pink; Antoine Merci, lilac and white; and Mia Ruys, white. Mr. S. J. Goodliffe had a smaller collection of herbaceous Phloxes which included Embrassement, salmon-rose; Widar, lilac with a white centre; Thor, salmon-pink; Homeland, scarlet; and Frau Antonin Buchner, white.

An interesting collection of seedling herbaceous Phloxes was grouped by Captain Symons-Jeune. These bore spreading heads of large flowers. The named sorts included Mrs. Cecil Hanbury, vivid rose, and Runnymede, purple. Several good Phloxes were associated with Gaillardia The King and other flowers by Messrs. Rich and Cooling. The Suffolk Seed Stores also showed Phloxes, and grouped them with Gladioli, Heucheras, Monardas and Gaillardias. Mr. A. Miles and the Misses Hopkins had small collections of seasonable border flowers.

Romneya Coulteri, Sidalceas and herbaceous Phloxes were displayed by Messrs. G. and A. Clark. Many spikes of the graceful Poterium tenuifolium var. album, various Lythrums, Eryngiums and a good selection of dwarf Campanulas were grouped by Messrs. M. Prichard and Sons, while Mr. Amos Perry showed Monarda didyma var. Cambridge Scarlet, Asclepias tuberosa, Lilium Wallichianum superbum, Delphinium sulphureum and several pans of the pretty little Nymphaea pygmaea Helveola.

Sidalceas were shown in quantity by several exhibitors. Messrs. Stark and Son, Ltd., included such good varieties as Graceful, rose-pink; Lilac Queen, rosy lilac; Attraction, old rose; and Silver Spray, pale silvery-pink. Mr. H. Hemsley included Marcus Adams, F. W. Alesworth, and Mrs. L. R. Russell in his collection.

An admirable group of hardy annuals was contributed by Messrs. Sutton and Sons. In the centre there was a large vase of the glowing flowers of Venidium fastuosum; Arctotis grandis and mixed Arctotis, Dimorphotheca aurantiaca were also well shown. There were many colour varieties of the valuable annual Larkspur, of which a large vase of mixed shades of colour was particularly effective. Other annuals which were included were Sweet Sultans, blue Swan River Daisies, Giant Candytuft, Nigellas, Eschscholzias and several wholly admirable varieties of double-flowered Godetias. Messrs. Daniels Bros., Ltd., had a good exhibit of annual Larkspurs in distinct colours. The chief were Carmine, Pale Blue, Dark Blue and Exquisite, salmon-pink.

Gladioli in quantity were staged by Messrs. Kelway and Son. The large-flowered sorts predominated and included Palestine, pink, with large, vivid blotches; Pinkie, yellow, with carmine blotches; Countess of Leicester, bright rose; James William Kelway, glowing crimson, and Earl Compton, blush with yellow blotches. On the opposite side of the hall, Mr. H. Prins showed Gladioli. His primulinus varieties included Yellow Favourite, Souvenir, George Arends, Lilac Wonder, Scarlet Cardinal and Phenomenal.

Roses were shown in considerable beauty by Messrs. B. R. Cant and Sons, Mr. J. H. Pemberton, and Messrs. D. Prior and Son. Messrs. C. Engelmann, Ltd., and Messrs. Allwood Bros. had their customary collections of fresh and fragrant Carnations of good quality.

In the centre of the hall Messrs. L. R. Russell, Ltd., had an uncommon exhibit in the form of a moss-covered trellis supporting Nepenthes, above a pool of tropical Nymphaeas, with attendant smaller pools of hardy Nymphaeas. The Nepenthes included N. Hookeriana, N. formosa, N. Russelli and N. Sir William Thistleton-Dyer.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. George Kelf, Mr. J. Cheal, Mr. H. Markham, Mr. A. Bullock, Mr. W. F. Giles, Mr. A. W. Metcalfe, Mr. A. Poupart, Mr. J. C. Allgrove, Mr. E. Beckett, Mr. H. V. Taylor, Mr. W. H. Divers, Mr. C. G. A. Nix and Mr. A. N. Rawes, Secretary.

Groups.

It is many years since such a grand exhibit of fruit trees in pots, as was shown on this occasion by Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex, has been staged at a meeting of the Royal Horticultural Society, and we heartily congratulate Mr. Wallrock and his gardener upon the excellence of the exhibit, and upon the high cultivation evidenced in the healthy and well-cropped specimens displayed. The group contained a wide variety of fruits and was well arranged, with large trees of Peaches and Nectarines, Apples, Pears and Plums filling the centre, and lined with single, double and triple, heavily-fruited cordons of Gooseberries in variety, and Red and White Currants, with half-a-dozen splendid Grape vines of Black Hamburgh and Foster's Seedling. Naturally, the Plums, Apples and Pears had not reached ripeness, but they were all carrying good crops and extremely healthy foliage. Of Apples, there were large trees of Lady Sudeley, James Grieve, Cox's Orange Pippin, Peasgood's Nonsuch, St. Everard, Langley Pippin, Worcester Pearmain and Charles Ross; Pears were represented by Marguerite Marillat, Williams's Bon Chrêtien, Triomphe de Vienne and Dr. Jules Guyot, and Plums by Jefferson's, Kirke's and Early Transparent Gage. Among Gooseberries, which were carrying heavy and fully ripe crops, were Broom Girl, May Duke, Pilot, Golden Gem, Whinham's Industry, Lancashire Lad, Shiner and Warrington. There were grand bushes of Red Currants Raby Castle, Comet and Warner's Grape, and White Currant Versailles. Peaches were represented by Peregrine and Early Alexander, and Nectarines by Pineapple and Early Rivers, so that variety was not lacking in this praiseworthy display, which well deserved the Gold Medal awarded to it.

Messrs. Stark and Son showed dishes and sprays of ripe fruits of Tomato Dainty Table. The red fruits are of medium size and very regular in shape in the bunch.

WATFORD AND HOME COUNTIES.

The third Annual Summer Show of this Society, held in Cassiobury Park, Watford, on July 23 and 24, was a very extensive affair, for beside the horticultural section, which comprised over 200 classes, together with numerous trade exhibits, there were competitions for honey, a horse gymkhana, and numerous other events which added general interest to the show. The majority of the horticultural classes were well filled—they were housed in seven marquees—and competition in all the sections was keen, while the trade exhibits scattered throughout the tents contributed largely to the bright effect.

In the trade section, Messrs. Chaplin Bros., Ltd., were first for a display of cut Roses, eighteen distinct varieties, their best blooms being of Mrs. C. Lamplough, Lady Inchiquin, Los Angeles and George Dickson; Messrs. F. A. Wheeler and Son secured the second prize, showing Los Angeles, Charles P. Kilham and Clarice Goodacre in good condition.

The Watford Horticultural Society's Silver Cup, for the best trade group on a space of 200 square feet was awarded to Messrs. T. Rivers and Son, who put up one of their well-known exhibits of fruit trees in pots. Messrs. E. W. King and Co. were second in this interesting class, showing a splendid collection of Sweet Peas, while the third prize went to Messrs. A. Scrivener and Son.

In Division B, open, trade excluded, the most attractive class was that for a group of flowering and foliage plants, on a space not exceeding 200 square feet. There were several attractive exhibits, the Cup presented by Messrs. Lane's Nurseries, Ltd., being awarded to J. Pierpont Morgan, Esq. (gr. Mr. G. F. A. Steward), West Hall, Watford, whose charming group contained well-grown Begonias, Caladiums, Codiaeums, Liliums and other subjects; it is also of interest to note that this exhibitor put up a very fine non-competitive exhibit of fruit trees in pots. Miss Wallis (gr. Mr. S. Holland), Highfield, Watford, was second in this class, with a triangular bed of well-grown plants in variety, while the third prize was awarded to the Mental Hospital, Napsbury, for a group in which well-flowered specimens of Campanula pyramidalis figured prominently.

In the classes for Roses, the best six vases came from the Mental Hospital, Napsbury; Mrs. S. G. Barratt, King's Langley, was first for three vases, and for twelve vases in at least four varieties; Mrs. E. Carpenter, King's Langley, was first in the popular class for a decorative basket of Roses, and Mr. A. L. F. Cook, Hayes, Middlesex, led for a single decorative vase.

The two classes for Sweet Peas added considerably to the attractiveness of the tents in which they were staged, the successful exhibitor being S. Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, who was first in both classes, for eighteen vases, securing the Earl of Clarendon Challenge Cup, and for six vases.

The majority of the special classes for annuals, various herbaceous and bedding plants, Carnations, foliage plants in pots, etc., were well filled, and competition in general was keen.

The numerous classes for fruits and vegetables in this section also provided some very interesting exhibits and close competition.

In the vegetable classes, S. Wallrock, Esq., was the leading prize-winner, other successful exhibitors being Major C. B. Krabbe, Calcot Grange, Reading; Lt.-Col. Sir W. Halsey, and J. P. Morgan, Esq.

Major-Gen. Caley, Swindon, showed the best set of five Nectarines, one variety, and J. W. Batty, Esq., was first in a similar class for Peaches. The best two bunches of black Grapes were shown by Major-Gen. Caley; J. P. Morgan, Esq., was first for white Grapes, while S. Wallrock, Esq., led for two Melons.

As usual, the class for a decorated dinner table was extremely popular, the prize-winning decoration being arranged by Mr. F. J. Jones, Watford, who used orange-coloured Sweet Peas very effectively; second, Mrs. F. A. Parks, Watford.

As in the previous section, there were innumerable exhibitors in the division for amateurs employing not more than two gardeners, many of the classes, both for flowers and vegetables being well filled.

The G. R. Scrivener Cup, for a group of flowering and, or, foliage plants, on a space not exceeding 100 square feet, was deservedly awarded to Alderman T. R. Clark, for a very meritorious mixed group; Mrs. H. E. Dunhill, Harpenden, was first for three vases of rambler Roses; six vases of Sweet Peas; and for six vases of annuals; other first prize winners in the floral classes were Mr. A. L. F. Cook, Mr. R. H. Long, Watford, and Mr. W. E. Fowler, Watford. In the fruit and vegetable classes in this section the leading prize-winners were Mr. R. H. Long, Watford; Mr. P. Henley, Watford; Mrs. Keevil, Chorleywood; and Mr. R. Boulton, Watford.

The same high standard displayed in the foregoing classes was displayed in the very numerous classes in the section for amateurs and gardeners in the Home Counties, and allotment holders and cottagers, especially in the single dish classes for vegetables, and the judges to whom these classes were allocated must have had an extremely difficult, and certainly a very protracted, task in judging them.

Non-competitive exhibits from trade growers were fairly numerous. Messrs. R. and G. Cuthbert showed Gladioli in variety; Mr. S. J. Goodliffe had a collection of herbaceous plants—Phloxes in variety, Delphiniums, Scabiosa caucasica, etc.; and Messrs. Rambotham and Co. staged a small collection of Roses.

Messrs. John Peed and Son were responsible for a very attractive group of indoor plants, which embraced Gloxinias in many fine varieties; Streptocarpus, Liliums, Hydrangeas, Caladiums, Codiaeums, and other popular subjects, charmingly arranged. Numerous good varieties of Scabiosa caucasica, together with Gaillardias, Coreopsis, Alströmeria aurantiaca and Romneya hybrida, were staged by Messrs. Isaac House and Son, while Messrs. W. Cutbush and Son, Ltd., showed topiary specimens in conjunction with herbaceous plants in variety and dwarf Polyantha Roses.

A collection of specimen blooms of their famous Begonias, together with Phloxes in variety, and Lupins, was staged by Messrs. Blackmore and Langdon, while herbaceous plants were shown by Mr. W. A. Collier. A good collection of fruit trees in pots was exhibited by Messrs. Lanes, Ltd.

Roses were shown by Messrs. Laxton Bros., and also by Messrs. B. R. Cant and Sons, Ltd., while a very interesting exhibit of Water Lilies in a long, shallow tray, with a background of semi-aquatic plants, Bamboos and Ferns, was arranged by Messrs. L. R. Russell, Ltd., who also showed dwarf Fuchsias, flowering Clematises in pots, and a few alpine plants. Messrs. Daniels Bros. showed Gladioli, Roses, Larkspurs and Sweet Peas, which made a very bright display; and Messrs. H. Simmonds and Sons staged herbaceous plants and annuals, including some very fine Sweet Peas.

GUILDFORD AND DISTRICT ROSE.

The third annual Rose Show of the above Society, which was to have been held on June 26, but had to be postponed owing to the extreme lateness of the Rose season, was held on July 10, and marked another big stride in the progress of this young Society, whose membership covers a wide area in Surrey, Sussex and Hampshire. Entries this year totalled 403, as against 320 last year, and the attendance of over 4,000 people showed an increase of about 1,000.

Messrs. Chaplin Bros., Ltd., secured the premier award in the big group class, being closely followed by Messrs. B. R. Cant and Sons, and Messrs. Frank Cant and Co., Ltd. Mr. J. H. Pemberton secured a Gold Diploma in the same class.

For a group ten feet long, the Dowty's Rosery, Mr. George Lilley and Mr. Henry Street were placed first, second and third, in the order named. Entries in the class for twenty-four blooms and in the class for eighteen bunches were numerous, the Cup for the latter class, which is a new one, being secured by

Messrs. Warner, with a very fine display, closely followed by Mr. F. Spooner and Messrs. Lund Bros., second and third, respectively.

The twenty-six classes for amateurs were so well filled that it has already been decided to increase their number next year: one class had fifty entrants, forty-seven of whom staged their exhibits. The outstanding classes were those for decorative bowls. There were four classes with entries varying from eighteen to twenty-six in each, and all of a high standard.

The open amateur class for eighteen blooms provided keen competition, Mr. Cuthbert Dixon, High Wycombe, being placed first, Mr. Vivian Rolt, Pulborough, second, and Sergt.-Major Stent, Guildford, third. Decorative Roses in stands and baskets were a very prominent feature of the show and well illustrated the modern tendency to provide an alternative to the stiff setting of the exhibition box.

Considerable interest was aroused by an exhibit of the first Roses cut from the new Guildford Municipal Rose Garden, the formation of which, with the permission of the Corporation, was taken over by the Guildford and District Rose Society in the spring of this year. The blooms were from the first 150 trees, which were planted on Good Friday last.

Mr. A. R. Darlington, the veteran Rose authority and immediate Past President of the National Rose Society, speaking at the luncheon, stated that he had visited a large number of Rose shows over a number of years, and that this was the best provincial show he had ever attended. Also, that he had never seen a larger number or better entries in the novices' classes by those who would ultimately become the standby of the Society.

READING GARDENERS'.

By the kind permission of Lionel de Rothschild, Esq., the Annual Outing of the Association was held in the delightful gardens and grounds of Exbury House, on July 10. The party, numbering between eighty and ninety, went by motor-coach via Romsey to Lyndhurst, where luncheon was provided at the Stag Hotel, after which the party proceeded to Exbury and spent the afternoon inspecting the beautiful gardens. The vast woodland garden was quite a revelation, and although the Rhododendrons were nearly over, there were two or three magnificent specimens of R. discolor still in flower. In the centre of these gardens are two large Lily lakes in which Nymphaeas of the finest varieties were flowering luxuriantly, the colours ranging from white to deep red, especially noticeable being Escarboucle (bright vermilion), Gladstoniana (snowy-white), and James Brydon (rosy-crimson). A walk through the vegetable quarters, which are very extensive, brought the party to the greenhouses, which were filled with Cherries in pots, Plums in pots, Figs, Peaches, Grapes, Orchids, Carnations, Anthuriums, Clivias and seedling and tender Rhododendrons. Especially interesting were the blue Water Lilies in tanks, including the variety Kew Special.

Returning to Lyndhurst, tea was partaken of, and after a pleasant drive via Southampton and Winchester, Reading was reached at 9.30 p.m.

SALISBURY GARDENERS'.

On July 15, nearly seventy members of the Salisbury and District Gardeners' Society, with their Vice-President, Mr. A. C. Jonas, Chairman, Mr. S. W. Tucker, and Hon. Secretary Mr. W. F. Gullick, attended the annual excursion. The weather was ideal. The party, travelling by char-a-bancs, first paid an early visit to Heale House, the residence of their President, the Hon. Louis Greville, where a very pleasant hour was spent, viewing the charming Japanese garden, and a new Rose garden, which, considering that it was only laid out and planted last autumn, was looking remarkably fine.

Passing through the delightful village of Woodford, where some of the finest Oaks of the district are to be seen, the party proceeded to Marlborough for lunch, and then on to Littlecote, Hungerford, the seat of Sir Ernest Salter Wills, Bart. Here, under the guidance of Mr. W. J. Smith, the gardener, a tour of the gardens was made. The magnificent herbaceous borders were fine colour schemes in yellow, gold and blue. There is no formality about the gardens at Littlecote and the winding stream adds to its beauty. The kitchen garden bore the same high level of quality as the pleasure grounds. The fine bowling green, laid down in the reign of Queen Elizabeth, occasioned a good deal of interest, as did also the old Tudor mansion which, standing amid such beautiful surroundings, created a charming picture.

Tea having been partaken of, the homeward journey was made via Andover, where, during the cool of a beautiful evening, the gardens of Amport House, the residence of Colonel and Mrs. Sofer Whitburn, were visited. Here, under the guidance of the gardener, Mr. A. S. Gooden, a pleasing, but more formal style of lay-out was seen. The gardens and park, viewed from the main terrace, with its magnificent stone balustrade, provided a delightful picture; miniature streams, flowing into a small ornamental pond, and in the distance some of the finest Silver Limes in England, planted by a former Marquis of Winchester, about seventy years ago were delightful.

During the day, Mr. Jonas expressed the thanks of the visitors to the respective owners of the gardens viewed, and on arrival at Salisbury, a hearty vote of thanks was accorded the Hon. Secretary, Mr. W. G. Gullick, for the trouble he had taken in arranging such a delightful and educational trip.

BIRMINGHAM AND MIDLAND COUNTIES GARDENERS'.

The close of the summer 1929 programme of visits in connection with the above Association took place on July 27, when a party of 168 members, ladies and friends, visited Windsor by special 7.45 a.m. train from Snow Hill, and arrived at Windsor at 10.45 a.m. The party was met at the station by Mr. C. H. Cook, gardener to H.M. The King, who arranged a most interesting programme. By special permission obtained from H.M. Privy Purse Department, the State Apartments, Albert Memorial and St. George's Chapel Royal were visited before luncheon, while visits to the Royal Mews, east terrace garden front, and the extensive ornamental grounds of the Royal gardens, Frogmore, occupied the whole of the afternoon. Luncheon was served at the Castle Hotel, to which Mr. and Mrs. Cook and Mr. and Mrs. Hubbard (pleasure ground foreman) and visitors, including press representatives, were invited. Mr. J. Smith, Chairman of the Association, and chief Superintendent of the Birmingham City Parks and Cemeteries, submitted the loyal toasts. "The Association" was proposed by Mr. C. J. L. Ray, who congratulated the association on its excellent work. After tea, hearty thanks were accorded Mr. Cook for his kindness in conducting the party, to which he suitably responded.

The party left Windsor at 7.40 p.m., arriving at Birmingham at 10.30 p.m., when all agreed that this was the most successful gathering during an experience of fifty years.

SAFFRON WALDEN HORTICULTURAL.

While most districts have suffered severely from drought, Saffron Walden has been particularly fortunate in having had several thunderstorms during the past month, and the rainfall, although at times heavy, has been of greatest benefit to the gardens and nurseries in the immediate locality. This was evidenced by the all-round excellence in the quality of the exhibits at the Saffron Walden Horticultural Society's show, held in Lord Braybrooke's park at Audley End, on July 25. Since the show was resuscitated after the war, it has advanced year by year until it has once again become one of the finest horticultural exhibitions in the eastern counties.

There were, this year, well over a thousand exhibits in the competitive classes, and the competition was so keen in many of them that the judges had no easy task in making their awards.

Mr. W. H. Scott, a local amateur, won no fewer than eighteen prizes, his collections of herbaceous flowers, annuals, and Gladioli being exceptionally good.

Mr. Engelmann's Challenge Cup for cottagers and allotment holders gaining the largest number of prizes, was secured for the third year in succession by Mr. J. Linsdell, and was thus won outright.

Mrs. Barker, Saffron Walden, once again had the honour of winning the much coveted Babington Smith Championship Silver Bowl, for a table decoration. There were fourteen decorated tables, which occupied the whole of the centre of one large marquee, while the sides were filled with choice exhibits of Roses, Sweet Peas, baskets and vases of flowers, ladies' sprays, etc.

The trade exhibits were again quite a feature of the show. Messrs. C. Engelmann, Ltd., occupied the whole of a large marquee with a magnificent display of Carnations, arranged very effectively, and Messrs. R. Bolton and Son staged a superb collection of Sweet Peas. Messrs. J. Vert and Sons, Ltd., of Saffron Walden, filled a large space with pot fruit trees laden with fruits; Messrs. Morse Bros., and Mr. J. Wright, of Takeley, exhibited grand collections of Roses; and Mr. S. J. Goodliffe showed herbaceous flowers in variety.

CARDIFF GARDENERS'.

The Society's third Saturday outing was held on July 20, when visits were paid to Llanilterne and Craig-y-Parc. The party left Cardiff by omnibuses, proceeded to Bnyawel Fruit Gardens and were met by Mr. J. Basham, who conducted the members over his plantations, where they were very much interested in the large variety of fruits grown by Mr. Basham in this part of south Wales. After exploring these extensive gardens, the members were entertained to tea in the Village Hall by Mr. Basham and members of his family, who were heartily thanked for their kindness and hospitality.

A visit was then paid to Craig-y-Parc, and a very hearty welcome was extended on arrival by the owner, Thomas Evans, Esq., C.B.E., and Mrs. Evans, who, with the assistance of Mr. Macgregor, their gardener, conducted the party over the extensive and beautiful grounds. The gardens have been recently laid out in old-English and Italian styles. Being on top of a hill, there are many charming terraces and walks, and at every corner were interesting surprises. The flowering shrubs were a feature and led out into natural woodland.

The annual outing will take place on August 12, when a visit will be paid to Testworth Park, Gloucestershire.

TRADE NOTES.

An interesting example of the practical application of electric heating occurs in the north of England, where a keen amateur grower of Orchids, with large greenhouses for these and other tropical plants, has hitherto had to depend upon hot-water pipes connected to a coke-fired boiler for the maintenance of a uniform temperature. Firing late at night, again early in the morning, as well as several times during the day, proved tiresome, especially as in the other houses containing semi-tropical plants a lower temperature was sufficient. The obvious remedy, therefore, was to instal separate heating for the Orchid houses and make them independent of the remainder of the buildings. For this purpose the Industrial Heating Department of the General Electricity Co., Ltd., was consulted, and a special, heavy, water-proof type of tubular heater was designed. A number of these heaters was experimentally installed in the Orchid houses to a total length of eighty-two feet, with a loading of sixteen kw., and connected directly to the three-phase network. To preserve the proper saturation of the atmosphere, the heaters themselves are constantly covered with water, which speaks well for their design, and accurate temperature control in the Orchid houses is effected by means of an adjustable air thermostat working in conjunction with a three-pole 25 amp. Witton Ironclad Contactor. With the advantage of a special tariff of ½d. per unit arranged with the local supply company, the Orchid grower is now congratulating himself on the general convenience and more economic advantages of these G.E.C. electric tubular heaters, as compared with the old-fashioned system of heating they have superseded.

There will be many regrets expressed regarding the news that Messrs. J. R. Pearson and Sons, Ltd., Lowdham, are giving up their business as nurserymen and fruit-growers. The firm has been established for about a century and has always enjoyed a high and well-merited reputation for its goods. In our experience, few nurseries are so admirably arranged or so well kept as those at Lowdham. Fortunately, however, the firm will not cease its activities by the disposal of the nurseries, as it will continue business of seedsmen and bulb merchants.

ANSWERS TO CORRESPONDENTS.

Correction.—We regret that an error occurred in our report of the meeting of the Royal Caledonian Horticultural Society, which appeared in our issue of July 27. It was the Edinburgh City Parks Department to which a Cultural Certificate was awarded for a group of Hydrangeas, etc., and the Roses were exhibited by Messrs. Dicksons and Co., not by Messrs. Alex. Dickson and Sons.

Chrysanthemums.—*H. J. G.* Assuming the Chrysanthemums you recently purchased were potted into nine-inch or ten-inch pots, and were restricted to three growths—which is generally the number of shoots taken up to produce large blooms—all the varieties listed are best taken on what is termed the crown bud, *i.e.*, when a bud appears on each of the three shoots, secure it by removing all side-shoots or buds, leaving only the central one; when this is secured, the roots should be fed with liquid manure or, better still, with some approved fertiliser recommended for the Chrysanthemum, using it twice weekly until the blooms are nearly developed, when it should be discontinued. Weak soot-water is also very beneficial and will tend to produce dark green foliage. The plants should be grown outside until about the third week in September, when they may be stood in a cool, airy house where only sufficient warmth should be allowed in the hot-water pipes to dispel night moisture. The varieties named in your letter are best suited for large blooms, and if treated as advised should be ready for cutting about the first or second week in November. Mrs. F. W. Wallis, yellow; Edith Cavell, chestnut-bronze; Louisa Pockett, pure white; Miss V. Chichester, silvery-mauve; Mrs. H. E. Jones, bronze-red; Mrs. G. Drabble, white, very fine (Japanese incurved); J. H. Silsbury, creamy white; Mrs. R. H. Pulling, lemon-yellow; and Pockett's Crimson, crimson, are all Japanese varieties. The above are not recommended for the production of small flowers for cutting, there being others that would give better returns for this purpose, especially among decorative sorts.

Culinary Peas Diseased.—*S. W. M.* The Peas are affected with foot-rot, which is due to the fungus Thielavia basicola. This disease is prevalent on plants growing in waterlogged soils. Attention should be paid to drainage before another crop is sown on the land. The application of sulphate of potash to the infected rows will induce resistance in the plants.

Garden in Meadow Land.—*J. H. H.* You have guessed well that most or all bacterial life has gone out of the trenched meadow land. That cannot be considered as due to the fact that the land has lain in pasture for thirty years; but that the turf was buried and the dead, inert soil brought to the top. Farmers often take two crops of Corn in successive years from meadow land, by simply turning over the turf by ploughing. We have seen the turf simply pared off and laid on the top after trenching. In another case a deeper sod was turned over with a spade, grass side down, and good crops of several kinds of vegetables taken from it the first year, including Beet, Parsnips and Carrots. Next autumn you should start digging the ground deeply enough to bring the turf to the top. Your difficulty is increased by the dry season, but the soil will be more mellow in autumn, and will be greatly improved by frost, air, and rain. The red sandstone soil of your district is a good one, and soon improves by cultivation. Keep it clear of weeds at all times and the wireworms will disappear if you continue applying vaporite and kill all you see while digging.

Gardener's Notice Without an Agreement.—*E. L.* In the absence of any agreement or local custom to the contrary, you are entitled to one month's notice, or one month's wages in lieu of notice, you being in law a domestic servant.

Lease of Garden.—*J. H.* If your lease expires by effluxion of time in May, 1930, there is no need for the landlord to give you any notice. You are not entitled to protection under the Rent and Mortgage Interest (Restrictions) Acts, as these would not apply to your tenancy. It is not possible to answer fully the other questions raised in your letter without seeing the lease and having more precise information as to the exact facts. Much depends on whether the property was let as a nursery ground or market garden.

Name of Fungus.—*C. W. R.* The fungus sent appears to be Psalliota elvensis, a Mushroom, and stated to be edible.

Names of Plants.—*W. D.* 1, Dianthus, one of the numerous garden varieties; 2, Dianthus, too scrappy for identification; 3, Dianthus caesius (form); 4, Saponaria caespitosa; 5, Veronica filifolia.—*E. B.* Prunus lusitanica var. myrtifolia—Portugal Laurel.—*W. and S.* Onotrychis sativa.—*H. S. B.* 1, Geranium pratense; 2, G. ibericum; 3, Cephalaria alpina; 4, Tradescantia virginiana; 5, Oxalis floribunda; 6, Scilla peruviana.—*C. J. L.* 1, Polygonum affine; 2, Phlomis fruticosa; 3, Astrantia major; 4, Thymus Serpyllum; 5, Anthericum Liliago; 6, Potentilla argyrophylla var. (there are many garden varieties of this plant); 7, Inula glandulosa; 8, Allium Moly; 9, Iris sibirica; 10, Nepeta ucranica; 11, Hieracium aurantiacum.—*C. C. C.* Ptelia trifoliata.—*S. A.* We cannot undertake to name florists' flowers.—*J. H. G.* 1, Tradescantia virginiana, purple-flowered; 2, a variety of tuberous-rooted Begonia.—*Miss H.* Spiraea Van Houttei.—*P. D.* Polygonum baldschuanicum.—*E. H. B.* 1, Pyracantha Rogersiana; 2, Cistus cyprius; 3, Crataegus Carrierei; 4, Phlomis fruticosa.—*J. C.* Tropaeolum polyphylum.—*F. E. S.* 1, Spiraea filipendula; 2, Campanula lactiflora; 3, not recognised; 4, Philadelphus microphyllus; 5, Stachys lanata; 6, Hemerocallis fulva.—*A. L. C.* We cannot undertake to name Rose varieties, we suggest you take them to a local Rose nursery.—*G. H. M.* Probably Jasione montana; please send complete specimen.—C. V. Leucadendron argenteum.—*Barbery.* 1, Salvia nemorosa (this is supposed to be a S. virgata hybrid); 2, Pelargonium atrum (a South African species).—*M. C.* Oenothera fruticosa.—*A. W.* Jasminum sp., probably J. Beesianum, but the specimen was shrivelled and there was only one remnant of a flower.

On Growing Chrysanthemums, Vanilla, Leucadendron, etc.—*R. F. S.* (1) Without knowing all the circumstances and conditions, it is not possible for us to state why your Chrysanthemums do not grow and flower properly. The condition mentioned, however, suggests lack of plant food in some form; if such is the case, the use of a suitable manure should overcome the trouble. (2) In the flowers of Vanilla the organs are so arranged that self-pollenation is impossible. Naturally, pollenation is stated to be effected by some insect; at the top of the column is a hood which covers the pollen masses, and below this is the viscid stigmatic surface, protected and hidden by a projecting lip called the lamellum. The pollen is shut in by the hood, and the stigma by the lamellum, so that two obstacles prevent self-pollenation. In artificial pollenation the object is to remove these obstacles, and to permit the pollen masses to approach the stigma. This is effected, firstly, by detaching the hood, which can be done by touching it with a piece of sharpened wood, and, secondly, by slipping the lamellum under the anther, when the pollen masses and stigma may be easily brought in contact by gentle pressure between the thumb and finger, or the pollen masses may be transferred from one flower to another. (3) Good seeds of Leucadendron argenteum, in our experience, usually germinate quite readily. We usually file through, or with a knife, pare through, a small portion of the hard outer coating; over-watering should be guarded against until the seeds germinate.

Rose Ophelia Failing to Open.—*W. W.* and *P. W. B.* Your Roses would appear to be scorched by water lodging in the buds. Judging by the state of the growths they would appear to have been over-watered.

Rose Unhealthy; Treatment of Gladioli.—*N. G.* The specimen of Rose was too meagre to make a satisfactory diagnosis of the trouble. The leaves have been attacked by the larvae of a sawfly, Eriocampa rosae. There is no fungus present on the foliage, but the plants appear to be suffering from drought conditions. Gladioli at this period of growth should not require very much manure as the flowers are already formed. The corms would benefit after flowering by the application of some Peruvian guano, using about one ounce to one gallon of water, but the dosage should not be overdone.

Tulip Bulbs with "Fire"—*A. R.* The Tulip bulbs were affected by "Fire," due to Botrytis tulipae. Several answers have been given to the same query recently (see p. 454, Vol. LXXXV.)—It was impossible to identify the plants from the material sent; the flowers should accompany the shoots. The stem is that of one of the Sumachs, Rhus species, while the leaf appears to be that of a shrubby Spiraea.

Valuation of Garden Produce, etc.—*Anxious.*—The matter depends so much upon the terms of your tenancy and local custom that it is impossible to express an opinion, without full information. You should consult a local valuer.

Vines Unhealthy.—*G. C.* The vine foliage is free from attack by any pathogenic organism. The trouble has arisen from draughts and sudden changes in temperature. Some of the leaves show signs of "scorch," so that the glass should be shaded during bright, sunny weather.

Woodlice in Melon and Cucumber Houses.—*B. J. H.* Ask your seedsman or horticultural sundriesman to get some of Corry's "Woodlice and Ant Death" for you. It kills woodlice and many other kinds of vermin in half-a-minute, while it is non-poisonous and may be used in any place infested with vermin. Ask for instructions with it, although these are usually given on the package or bottle, as the case may be. Woodlice go into houses for the sake of warmth, and if they find food as well, they stay.

Communications Received.—T. R.—G.—G. D.—H. W. S.—J. S.—T. K.—S J. W.—H. S. B.—W. V. M.

MARKETS.

COVENT GARDEN, Tuesday, July 30, 1929.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Crotons, per doz.	30 0-45 0
Cyrtomiums ...	10 0-12 0
Fuchsias, per doz.	9 0-15 0

	s. d. s. d.
Hydrangeas, white, per doz.	18 0-30 0
—pink and blue, per doz. ...	18 0-36 0
Lilium longiflorum, per doz.	18 0-24 0
Marguerites, white, per doz.	9 0-12 0
Nephrolepis, in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia,	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's, per tray of 15 ...	2 6–3 0
Roses, Polyantha, per doz. ...	15 0-18 0
Verbenas, pink and scarlet, per doz.... ...	9 0-15 0
Viscarias ...	12 0-18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Achillea, white, per doz. bun.	3 0—5 0
Adiantum decorum, doz. bun.	8 0—9 0
—cuneatum, per doz. bun. ...	5 0—6 0
Asparagus plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 6—2 0
—short „ ...	0 9—1 0
Asters, white, per doz. bun.	3 0—6 0
—mauve, per doz. bun. ...	4 0—6 0
—pink, per doz. bun.	4 0—6 0
Carnations, per doz. blooms	1 0—2 6
Chrysanthemums, bronze, per doz. blms. ...	2 0—3 0
Clarkias, per doz. bun.	4 0—5 0
Coreopsis, per doz. bun. ...	1 0—1 6
Cornflowers, blue, per doz. bun.	1 0—1 6
—pink, per doz. bun.	1 0—1 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun.... ...	1 6—2 6
Delphinium, blue, per doz. spikes	2 0—4 0
Ferns, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	9 0-10 0
Gaillardia, per doz. bun. ...	2 6—3 6
Gladiolus, large vars., white, per doz. spikes	2 0—3 0
—yellow „	2 0—3 0
—pink „	1 6—2 6
—mauve „	2 6—3 0
—scarlet „	2 0—3 0
—primulinus „	1 0—1 6
Gypsophila, —paniculata, per doz. bun. ...	6 0—9 0
— — double, per doz. bun.	12 0-18 0
Heather, white, per doz. bun.	12 0-18 0
Larkspur, mauve and pink, per doz. bun. ...	5 0—6 0

	s. d. s. d.
Lavender, per doz. bundles...	8 0-12 0
Lilium longiflorum, long, per bun. ...	2 6—3 0
— — short, per doz. blooms	2 0—2 6
—speciosum album, long, per doz. ...	4 6—6 0
— — — short, per doz. ...	2 6—3 0
—auratum, per doz. blooms...	8 0—9 0
Lily-of-the-Valley, per doz. bun.	24 0-30 0
Marigolds, per doz. bun. ...	3 0—5 0
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0-42 0
Roses, per doz. blooms—	
—Columbia ...	2 0—3 0
—Richmond ...	1 0—2 0
—Yellow ...	1 6—2 6
—Molly Crawford	1 6—2 6
—Butterfly ...	1 6—2 0
Saponaria, white and pink, per doz. bun. ...	3 6—4 0
Scabiosa caucasica, per doz. bun. ...	3 0—4 6
Smilax, per doz. trails ...	4 0—5 0
Statice, mauve, per doz. bun.	4 0—8 0
—white, per doz. bun.	5 0—8 0
—yellow, per doz. bun.... ...	5 0—6 0
—incana, per doz. bun. ...	10 0-12 0
—latifolia, per doz. bun. ...	12 0-15 0
—Suworowii, per doz. bun.	4 0—6 0
Stock, double white, per doz. bun.... ...	3 0—6 0
—double pink, per doz. bun.	4 0—8 0
—mauve, per doz. bun. ...	4 0—8 0
Sweet Peas, various, per doz. bun.... ...	2 6—3 6
—special, per doz. bun. ...	5 0—6 0
Sultans, white, per doz. bun.	2 0—4 0
— mauve, per doz. bun. ...	2 6—4 0
—yellow, per doz. bun. ...	2 6—3 6
Zinnias, per doz. blooms ...	1 6—4 6

REMARKS.—A certain amount of depression continues throughout this department, and prices in general do not show any improvement, owing to lack of demand, which is not unusual for July. Carnations, Roses and Liliums may become somewhat more valuable this week-end, owing to August Bank Holiday. Asters and Chrysanthemums show a slight increase, but there is little demand for the latter. All Statices are arriving in fine condition, including S. latifolia and S. incana. Some very fine Zinnias are on offer in various colours, at from 1s. 6d. to 6s. per dozen blooms; also a few blooms of Gerberas at 4s. to 5s. per dozen blooms. The supply of choice foliage, such as Asparagus plumosus, A. Sprengeri, Maidenhair Fern, and of all hardy foliage, is too heavy for present requirements.

Fruit, Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Early Victorias, per ½-bushel	2 0—5 0
—Grenadiers, per ½-bushel ...	2 0—5 0
—Australian—	
—Granny Smith	25 0-30 0
—Tasmanian—	
—Granny Smith	25 0-30 0
Bananas, per bun.... ...	17 0-27 6
Cherries, English,	
—Napoleon, per ½-sieve ...	12 0-20 0
—Black Eagle	10 0-14 0
—Nobles ...	12 0-16 0
—Bigarreau (Amber) ...	8 0-10 0
—Morello ...	8 0-12 0
Currants, Black, per lb. ...	0 2½–0 3
—Red, per lb....	0 3—0 4
Figs, per doz....	6 0-24 0
Gages, Spanish, ½-bush. ...	8 0-12 0
Gooseberries, dessert, per ½-sieve ...	2 0—8 0
—Leveller, per lb.	0 4—1 3

	s. d. s. d.
Grapes, English—	
—Muscat ...	2 0—7 0
—Black Hamburgh, per lb.	1 9—3 0
Grape Fruits...	35 0—42 6
Lemons, per case—	
—Messina ...	20 0-25 0
—Naples ...	20 0-30 0
Melons, each ...	3 6—4 6
Nectarines, per doz.	12 0-24 0
Oranges—	
—Denia ...	27 6-32 6
—Murcia ...	26 0-40 0
Peaches, per dozen ...	8 0-24 0
Pears—	
—Italian, per crate... ...	4 0—6 0
—New Zealand—	
—Winter Nelis, per tray ...	— 5 0
—Australian—	
—Winter Nelis	— 5 0
Pineapples, case	21 0-36 0
Plums, Italian—	
—Burbanks, per tray	4 0—5 0
—Blue, per boat	3 0—4 0
Plums, French, Royals ...	7 6-10 0
Raspberries, 2 lb. chips ...	1 0—2 6

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, per ½-bushel ...	2 0—3 0
—Runner, per ½-bushel ...	2 0—3 0
Beet, per bushel	4 0—5 0
Cabbage, per doz.	0 9—1 0
Carrots, French, per doz. bun.	4 0—8 0
Cauliflowers, flat, 6's, 9's, 12's,	— 2 0
Endive, French, per crate, 18's and 24's ...	4 6—6 0
Lettuce, round, 24's ...	1 6—3 0
—Cos, per box, 20's ...	2 6—3 0
Mint, per doz. bun.... ...	1 0—2 0

	s. d. s. d.
Mushrooms—	
—cups, per lb	2 0—2 9
—broilers ...	1 3—1 9
Parsnips, per cwt. ...	4 0—5 0
Peas, English, per bag ...	1 6—2 6
Potatos, cwt. ...	3 0—5 0
Tomatos, English, per box of 12 lbs.—	
—pink	3 0—5 0
—pink and white	3 0—4 0
—white ...	2 0—3 0
—blue	2 0—3 0
—Guernsey ...	3 0—3 6
—Dutch, per tray, 30 lbs....	3 0—4 0
Turnips, French, per doz. bun.	6 0—8 0

REMARKS.—Brisk conditions in practically all sections of the market are ruling at the moment, conditions which were naturally assisted by the continued fine weather. Increased quantities of hothouse Grapes from Holland and Belgium have brought about lower quotations for English Grapes; Peaches and Nectarines are still selling well, and Melons, if good, realise comparatively high prices, although with the London season drawing to a close, there is an easier tendency generally for choice fruits. It must be many years since English Cherries have been marketed in such good condition, and all varieties have been, and are still, selling remarkably well. Black Currants, however, are a weak market, probably owing to the fact that they are rarely consumed as dessert, and cooking during the very hot weather is not a popular pastime, in addition to which quantities have been very heavy. There has been a good enquiry for dessert Gooseberries, Leveller variety, but not much demand for other sorts, and prices are on the low side. Raspberries are selling well. There is a fair sprinkling of English Apples available, but for the most part they consist of thinnings: Early Victorias and Grenadiers, of medium size, have sold well. Mushrooms are an improved trade, mainly because supplies are not so heavy. In the Tomato section the competition of Dutch Tomatos has been felt acutely, and prices all round are too low to bring much satisfaction to the growers. Cucumbers are selling well if in good condition, but fruits lacking colour are difficult to dispose of. Peas and Beans, in common with most other vegetables, are not selling freely, and even salads are not going out quite so fast as a few days ago. Plums from Italy are in good demand, as are Pears from the same source. There are still Apples available from Australasia, but the recent arrivals have been out of condition. Oranges and Lemons have been in keen demand and continue to sell well. Potatos are not a particularly good trade, supplies being heavier, and prices are slightly lower.

GLASGOW.

A good business was done in cut flowers last week, at prices which favoured buyers. Carnations continued plentiful and cheap at 6d. to 1s. 6d. per dozen; Gladioli ranged from 1s. to 3s.; Roses, 1s. to 2s. 6d.; Lilium longiflorum, 2s. 6d. per bunch; Sweet Peas, 1d. to 6d.; Stocks, 2d. to 5d.; Pyrethrums, 3d. to 4d.; Scabious, 3d. to 5d.; Sweet Williams, 2d. to 3d.; Calendula, 1d. to 4d.; Statice, 6d. to 1s.; white Heather, 6d. to 9d.; Marguerites, 1½d.; and Gypsophila, 1d. to 3d.

A large business was done in home-grown fruits at reduced values. The market was overstocked daily with Black Currants, which sold at 4d. to 5d. per lb.; while Red Currants declined to 3d. Raspberry prices ranged from 6d. to 9d.; Gooseberries, 2d. to 3d.; Cherries, 13s. per sieve; Gages, 15s.; home-grown Melons, 6s. each; Peaches, 7d. to 1s. 2d.; and green Apples, 3d. to 4d. per lb. Imported fruits were quoted as follows:—Italian Plums, 5s. 6d. per tray; Melons, 12s. 6d. (24's); Canteloupes, 1s. 6d. each; Pineapples, 4s. 3d.; Grape Fruits, 31s. per case; Californian Oranges, 22s. to 25s. per case; New Zealand Apples, 20s. to 23s.

Tomato supplies exceeded the demand, and on Friday Grade A fruits were sold at from 2d. to 4d. per lb. Cauliflowers realised 4s. to 5s. per dozen; Cucumbers, 3s. to 4s. 6d.; Lettuces, 9d. to 1s.; Evesham Beans, 3d. per lb.; Peas, 6s. per bag (40 lbs.); Mushrooms 2s. per lb.; Carrots and Turnips, 3d. per bunch; and Garlic, 2s. 6d. to 3s.

SCHEDULES RECEIVED.

ABERGAVENNY AGRICULTURAL ASSOCIATION.—Horticulture, etc. Exhibition, in Bailey Park, on September 5, 1929.—Secretary, Mr. H. J. Rice, Bro Dawel, Deri Road, Abergavenny.

THE NATIONAL CARNATION AND PICOTEE SOCIETY, NORTHERN SECTION.—Annual Exhibition, on Saturday, August 10, in the Lower Cutlers' Hall, Sheffield.—Secretary Mr. Wilfred Secker, 11, Longley Avenue, Norwood, Sheffield.

KING'S WALDEN HORTICULTURAL SOCIETY.—Twenty ninth Exhibition of Flowers, Fruit and Vegetables, on Wednesday, August 7, in the Park, King's Walden.—Secretaries, Mr. A. J. Hartless, The Gardens, King's Walden Bury, Hitchin, and Mr. W. G. P. Clarke, 4, York Road, Hitchin.

BLETCHLEY AND DISTRICT HORTICULTURAL SOCIETY.—Fifteenth Summer Show, on Monday, August 5, in Bletchley Park. Autumn Show on Friday and Saturday, November 8 and 9, in the High Street Schools, Bletchley.—Secretary, Mr. Hedley J. Clarke, Bletchley, Bucks.

EASTBOURNE HORTICULTURAL SOCIETY.—Summer Show, in the Manor House Grounds, on Wednesday and Thursday, August 21 and 22. Autumn Show in the Winter Garden, Devonshire Park, on Wednesday and Thursday, October 30 and 31.—Secretary, Mr. James Ticehurst, 4, Bakewell Road, Eastbourne.

THAME SHOW.—The sixty-ninth Annual Show, to be held at Thame, Oxon., on Thursday, September 19, 1929.—The Secretary, Thame Show, Thame, Oxon.

CATALOGUES RECEIVED.

STEWART AND CO., 13, South St. Andrew Street, Edinburgh.—Bulbs and roots for autumn planting, and for forcing for Christmas and winter bloom.

RYDER AND SON, LTD., St. Albans.—Bulbs, Flower and Vegetable Seeds and Seedling Plants for summer and autumn sowing and planting.

SUTTON AND SONS, Reading.—Flower and Vegetable Seeds for summer and autumn planting; Horticultural Sundries, etc.

J. R. PEARSON AND SONS, LTD., Lowdham, Notts.—Bulbs and Roots for summer and autumn planting; Sweet Peas, Strawberries, Flower Seeds for autumn planting, Garden Tools, etc.

LITTLE AND BALLANTYNE, LTD., Carlisle.—Bulbs, Plants for early forcing, Roses, Fruit Trees, Hardy and Ornamental Trees and Shrubs.

JOHN WATERER, SONS AND CRISP, Twyford, Berks.—Bulbs.

R. WALLACE AND CO., LTD., The Old Gardens, Tunbridge Wells.—Irises.

BARR AND SONS, Covent Garden, W.C.2.—Autumn and Winter-flowering Bulbs.

Foreign.

V. LEMOINE AND SON, Nancy, France.—Herbaceous plants, flowering shrubs, etc.

H. DEN OUDEN AND SON, Old Farm Nurseries, Boskoop, Holland.—Trees, Evergreen and Flowering Shrubs, Roses, Hardy Perennials and Alpines, Paeonies Irises, Hardy Ferns (Wholesale only).

ANTHONY ROOZEN, Haarlem, Holland.—Dutch Bulbs Herbaceous plants, Roses, etc.

GARDENING APPOINTMENTS.

Mr. P. Baldwin, for the past seven years gardener to Major Sir FRANCIS BURDETT, Bart., at Foremarke Hall, Derbyshire, as gardener to the same at Ramsbury Manor, Wiltshire. [Thanks for 2s. for R.G.O.F. Box.—EDS.]

Mr. Howard Grace, for the past three years gardener to Mrs. BONVILLE FOX, Brislington House, Bristol, and previously gardener to EARL TEMPLE, Newton Park, and Sir E. MOUNTAIN, Bart., Norbury Park, Dorking, Surrey, as gardener to the Rt. Hon. VISCOUNT EDNAM, Himley Hall, Dudley, Worcestershire.

Mr. E. Oovey, for the past seven years gardener to H. D. RYAN, Esq., Minley Grange, Farnborough, Hampshire, as gardener to Mrs. COURTENANY BRUCE, Brook House, Fleet, Hampshire.

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COLOURED SUPPLEMENT PLATE.
Rose Flamingo.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62·4°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street Covent Garden, London. Wednesday, August 7, 10 a.m. (Greenwich time). Bar. 29·9. Temp. 60°. Weather, showery.

Hardy Fruit Crops of 1929.

THE unhappy climatic conditions that prevailed during a greater part of the flowering period of fruit trees led most gardeners to predict a bad or poor fruit year. That prediction, however, has not been entirely justified by the results, for while it must be admitted that 1929 is not a great fruit year, it is not a wholly bad one. It is a bad Plum year, but curiously enough, while such early-flowering subjects as Plums suffered badly during the severe weather of early spring, Peaches and Nectarines, usually regarded as more susceptible to unkind weather, appear to have escaped damage and are cropping well. In our own garden in West Middlesex, some Peach trees planted against a fence—and not too prosperous, owing to the draughty position—have been allowed to grow rather freely above the fence, because of the spring beauty of their abundant flowers. These unpruned branches, rising six feet above any protection, flowered beautifully, and are now carrying good crops of fruits. The Apple crop is moderate in most districts, very poor in others, and only very good in a few places. Pears are yielding better than was anticipated, and even where Apples are practically a failure, Pears often carry good crops. Cherries were good, but in quality rather than quantity, although the good old Morello Cherry has once again demonstrated its value as an unfailing cropper. Almost everywhere, the crops of small fruits have been excellent in quantity and quality; Black Currants have shown that they can withstand dry weather to an extent for which they do not usually receive credit; Raspberries, despite the dry weather, have also yielded well, so far as our personal experience goes, and Loganberries have maintained their reputation for consistent and abundant crops. The old-time popularity of the Apricot appears to have waned considerably and no doubt its uncertainty as a crop-producing fruit, coupled with its tendency to die, in part or in whole, without any obvious reason, has led to fewer trees being planted. A very pleasing inference to be drawn from the reports of our correspondents (pp. 112-118) is that Strawberries are regaining some of their wonted vigour; there is no doubt that the many troubles to which Strawberries have been subject during recent years are being combated with an increasing measure of success, thanks to the investigations made by the various research stations and the remedies suggested as a consequence. In short, there seems to be good reason for hoping that in a few years' time the cultivation of Strawberries will not be the difficult and exasperatingly disappointing task it has been of late. Home-grown Nuts do not occupy so important a position in the dessert as they did a couple of generations ago, owing to the large and varied imports, nevertheless, every gardener likes to be able to place good Cobs, Filberts and Walnuts on the table of his employer, but will be able to do so in very few cases this season, for once again it is a poor Nut year, Walnuts excepted. Before considering the Hardy Fruit Crop in greater detail we take this opportunity of thanking our numerous correspondents for the returns they have made. A few of the report forms sent out have not been returned, and a dozen or so were received at too late a date for inclusion in the tables which appear in this issue. The total number of reports received is two hundred. Our most important fruit crop, Apples, is under the average in quantity, as the reports show only 86 average and 15 "over" records, against 100 under the average. Pears make an even worse showing, taking the country as a whole, as there are 103 reports of "under" crops, 73 average and only 20 above the average. Out of the 198 records received only 10 show a crop of Plums above the average, and 56 indicate average crops, while the appalling number of 132 reporters have to record a deficiency. Cherries are better, as only 48 records tell of crops under the average, whereas there are 31 records of crops above the average and 104 of average amount. As already indicated, it is a good year for Peaches and Nectarines, for out of 136 records, only 15 are "under," while 66 are average, and no fewer than 55 "over." Small fruits make a very fine showing in the report tables and only 11 correspondents have to record crops below par, whereas 107 report average crops, and no fewer than 83 have been blessed with bountiful returns; the small fruits certainly have the best of it in this year's records. Although 75 reports indicate small crops of Strawberries there are 84 of average quantity and 34 above the average; in 1928 there were only 29 records of "over" crops, while the "under" crops numbered 80, and average 103, out of a total of 212 records. The total returns under Nuts show 46 average and only 12 "over" crops as compared with 1928, when there were no records of "over" crops, 23 average, and 72 below the average.

Our Coloured Supplement Plate.—The subject of the Coloured Supplement Plate which we have pleasure in presenting with this issue is the beautiful H.T. Rose Flamingo, which was raised by Messrs. Alex. Dickson and Sons, and was awarded the National Rose Society's Gold Medal on July 15, 1927, at the special show of new Roses held on that date. It is a very charming Rose, the blooms being well formed and shapely, especially in the bud, and very sweetly scented. It is after the type of the popular Rose Lady Inchiquin, and is regarded as an improvement on that variety. The colour is glowing, cerise-pink, deepening with age.

International Horticultural Exhibition at Courtrai.—An International Horticultural Exhibition is to take place at Courtrai, in Belgium, from September 14 to 16, this year. As its title implies, foreign exhibits as well as Belgian will be accepted, and all particulars are to be obtained from the Secretary, M. J. Callens, Grand Place 1, Courtrai, but applications close on August 15. There is a good choice of classes, which include greenhouse plants, all kinds of flowering plants in season, Dahlias, gardens, fruits, vegetables, wines, sundries, etc. Various bands have been engaged to play during the exhibition, and the proceedings will close with a dance at the Communal Theatre on the night of Monday, September 16.

A Series of National Parks.—The movement to establish a series of National Parks in this country, which originated in a letter by Lord Bledisloe written to *The Times*, in which he proposed the conversion of the Forest of Dean into a National Park, would appear to be widespread, and many prominent personages are taking an active interest in the scheme. Several natural beauty spots have already been suggested as suitable for the purpose, including the lovely vale of Dovedale, in Derbyshire, and the scheme is to be made the subject of a conference shortly. In the creation of National Parks, America has long led the way; at the present time America has nineteen National Parks, which embrace a total area of seven million acres and 160 National Forests covering 159 million acres, the primary objects of these national parks and forests being to foster the natural beauties of the areas and for the production of timber. What, exactly, will be the principles governing, and the purposes of, the proposed National Parks in this country, have yet to be clearly defined.

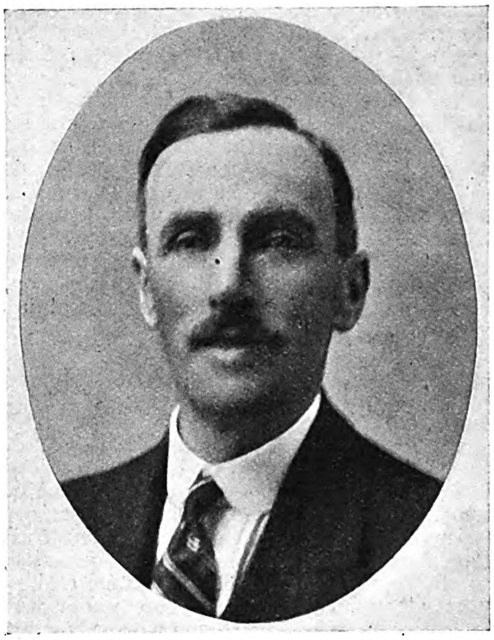
"Hardy and Half-hardy Plants."—Parts 3 and 4 of Vol. I, for July and August, respectively, of Mr. A. W. Darnell's new work, maintain the high standard of production of the previous publications. Abelia floribunda is the subject of a coloured plate in Part 3, the other illustrations in this issue being of Anemone palmata, Blechnum penna-marina, Buddleia Colvillei, Convolvulus sabatius, Cypripedium passerinum, Gazania pygmaea, Iris Milesii, Lewisia cotyledon, Lilium rubellum, Linnaea americana, Lobelia Kalmii, Meconopsis punicea, Pentstemon Scouleri, Phyteuma comosum, Pyrola chlorantha, Pyxidanthera barbulata, Rhododendron Schlippenbachii, Rubus parvus, Silene caroliniana, and Sisyrinchium filifolium; a very interesting set. Part 4 contains excellent illustrations of Clematis macropetala (coloured), Asplenium fontanum, Calceolaria biflora, Campanula macrorhiza, Cypripedium luteum, Davidia involucrata, Fremontia mexicana, Helichrysum grandiceps, Heloniopsis grandiceps, Incarvillea variabilis, Iris foetidissima, Lathyrus splendens, Mimulus brevipes, Mitchella repens, Oxalis enneaphylla, Primula Allionii, Rhododendron Baileyi, Rubus geoides, Salvia patens, Tulipa Clusiana and Viola rhodopeia.

Rose Show at The Hague.—The Rose Show which was held at The Hague, Holland, on July 19, 20 and 21, was well attended and highly successful. The opening ceremony took place in one of the halls of the Zoological Garden, an interesting speech being made by Mr. G. A. van Rossem, the Vice-President of the Association responsible for the arrangements. He spoke feelingly of the loss sustained to Dutch horticulture by the sudden death of the late Jhr. Mock, who had taken so large a part in Dutch nursery activities. The exhibits were beautifully arranged and made a most pleasing impression. The most important group was that of the firm of G. A. van Rossem, of Naardem, but so far as quality was concerned it was difficult to discriminate, and the exhibition as a whole reflected the greatest credit both on the organisers and on those who, in a late and difficult season, were able to assemble such a fine display.

Colour Film of Aquatic and Waterside Plants.—Mr. Amos Perry will give a lecture at the Royal Horticultural Society's fortnightly meeting, on Tuesday, August 13, at 3 p.m., on "Aquatic and Waterside Plants." A film, taken by the Koda-colour branch of Messrs. Kodak, in colour, depicting aquatic plants growing in a number of well-known gardens, will be displayed. As it is believed that this is the first occasion such a colour film has been exhibited for the purposes of a horticultural lecture, and as it will be of an instructive as well as an attractive character to a great number of horticulturists and to those interested in colour photography, any person interested in the lecture and display will obtain free admission to the lecture on application to the Secretary, R.H.S., Vincent Square, Westminster, S.W.1.

Scottish Potato Trials.—On the invitation of the Department of Agriculture for Scotland, a representative company of farmers, merchants, raisers and others interested in the Potato industry attended the annual demonstration of new seedlings at the trial plots situated at East Craigs, near Edinburgh, on Friday of last week. Mr. Anderson and Mr. Miller represented the Department and supplied the information regarding the work on hand. With reference to the certification of pure stocks suitable for use as seed sets, it was mentioned that the new special stock of Golden Wonder grown by Mr. John Chisholm, at Ladysbridge, Banff, represented a noteworthy achievement in the production of seed Potatos. This stock was described as "unequalled in the British Isles," and being free from serious Mosaic disease should be a strong attraction to growers producing for the "ware" market. It is also interesting to note that in one at least of the stock-seed plots of King Edward, one or two of the tubers failed to produce plants. These tubers were found to be affected with the fungus disease known as Skin Spot (Oospora pustulans), which usually takes the form of small, dark-brown pimples on the skin of the tuber. When a tuber is badly affected the fungus spreads over the eyes and kills them, thus preventing growth. This disease does not make its appearance until the spring, and its presence until then is unsuspected. It has been quite prevalent recently and seems to be definitely associated with certain fields. Commenting on registered varieties not having met with immediate satisfaction, it was explained that blemishes have appeared which were not sufficiently apparent during the testing period. The market was the best judge regarding the general attributes of a new variety, and the work of the Synonym Committee could only be regarded as a guide. The members, however, realised in what respects its testing methods required improvement, and action is being taken, or is contemplated, in respect of tests for (1) earliness; (2) cooking quality; (3) keeping capacity; and (4) resistance to disease—particularly Blight, Black-leg and Mosaic. Interest centred chiefly in the third-year trials where D1, raised by Mr. W. B. Pollock, was beaten in the early section by Ninetyfold, and was about equal to Duke of York. In the second-early and maincrop sections there were three seedlings of promise, viz., Alannah, sent by Sir Josslyn Gore-Booth, Sligo, which resembles British Queen in appearance and habit of growth, but is quite distinct; Dunbar Cavalier, which resembles King Edward in appearance, and Mr. McKelvie's No. 675, which is a cross between Flourball and Golden Wonder. The last two varieties are noteworthy for their fine cooking quality. In the second year trials the seedlings that secured favourable comment were No. 7,252, a second-early raised by Messrs. McGill and Smith, Ayr, and the following maincrop sorts:—H 326 (Messrs. Dobbie and Co.); Q. (Messrs. Alexander and Brown); A 596 (Mr. D. McKelvie); and 11,254 (Messrs. McGill and Smith). The main-crop section in the first-year trials was noteworthy for the five seedlings submitted by the Scottish Society for Research in Plant Breeding. All five seedlings are tall, vigorous and free from all symptoms of virus diseases. In the preliminary tests they exceeded Kerr's Pink in yield, and were considered equal to that variety in cooking quality.

Mr. William H. Holloway.—Visitors to the meeting of the Royal Horticultural Society held on Tuesday, July 30, who admired the fine fruit trees in pots exhibited from the gardens of Samuel Wallrock, Esq., The Manor House, Stanmore, will probably like to know something about the very able gardener who grew them. Commencing his gardening career at The Rectory, Monk Sherborne, Basingstoke, Mr. Holloway subsequently gained experience at The Vyne, Sherborne St. John, also at Basingstoke, and subsequently served under Mr. F. Streeter, at Hewshott House, Liphook, with whom he remained for three years. His next position was at Sir Randolf Baker's garden, Ranston, Blandford, where he stayed for three years under Mr. A. E. Usher, and naturally became fully acquainted with the high-class cultivation of Sweet Peas. From Ranston he passed on to Basing Park, Alton. Then came the War. For a period of four years and ten months Mr. Holloway served with H.M. Forces. After demobilisation he entered the service of Colonel G. L. May, and remained with him as gardener at Down Grange, Basingstoke, for six years. His next appointment was with Lady Louth, Summerfield House, Elstree, and in June, 1926, he took up his present position at a time when Mr. Wallrock was developing his extensive garden-planning operations at Stanmore. Both Mr. Wallrock and Mr. Holloway are keen exhibitors, and they have already a notable list of successes, especially when it is remembered that the garden at Stanmore is only nine years old, and developments are still continuing. In 1927, they obtained twenty first prizes, two Challenge Cups, a large Gold Medal and a Banksian Medal at the Elstree show, besides nineteen first prizes and two Challenge Cups at the Watford show, and twenty-one first prizes, three Challenge Cups and a Silver Medal at the Bushey Heath show. In 1928, their record at Elstree was twenty-three first prizes, two Challenge Cups and a Gold Medal, and, at Watford, thirty-one first prizes and two Challenge Cups, in addition to a piece of plate, while at Bushey Heath they secured nineteen first prizes, four Challenge Cups and a Silver-gilt Medal. Successes obtained this year prove the consistency of Mr. Holloway's skill as a cultivator and they include twenty-five first prizes and three Challenge Cups at Elstree; twenty-five first prizes and two Challenge Cups at Watford, and seventeen first prizes, two Challenge Cups won outright, and a Gold Medal at Bushey Heath Show on August Bank Holiday. In addition, the Stanmore produce has won a Challenge Cup at Harrow this year; seven first prizes, the E. W. King Cup and a Banksian Medal at Norwich; seven first prizes, one Challenge Cup and a Banksian Medal at Windsor; the Silver Medal for Cinerarias, and a Silver-gilt Medal for Schizanthuses, as well as the Gold Medal for pot fruits, all from the Royal Horticultural Society; and the National Sweet Pea Society's Bournemouth Cup at that Society's London Exhibition. This wonderful list of successes leads us to anticipate great things in the future from The Manor House gardens, where both Mr. Wallrock and Mr. Holloway combine to produce a garden of great taste and beauty, and flowers, fruits and vegetables of the very highest quality.


MR. WILLIAM H. HOLLOWAY.

Gentiana hascombensis.—Mr. C. T. Musgrave, of Hascombe Place, Goldalming, informs us that the handsome and vigorous hybrid Gentian he raised between G. Lagodechiana and G. septemfida var. cordifolia, is to be known as G. hascombensis (Fig. 50). Mr. Musgrave exhibited the plant at the meeting of the Royal Horticultural Society on July 30; it was described in *The Gardeners' Chronicle* of August 3, p. 96.

Kew's Place in the System of Agricultural Bureaux.—The majority of our readers are aware of the wonderful work accomplished by Kew and Kew men in developing the economic resources of the Empire; they will, therefore, be interested to learn what the Ministry of Agriculture has to say regarding the Royal Botanic Gardens and their place in the system of Imperial Bureaux established for the centralisation and distribution of information on agricultural subjects, a system that has recently received considerable expansion as a result of the recommendations of the Imperial Agricultural Research Conference, 1927. In this connection the Ministry states in its *Journal* for the present month that: "Kew fulfils the functions of a Bureau of Botany in all its aspects. On the economic side it has for many years been actively engaged in obtaining from all parts of the world plants of potential economic value, and in the propagation and distribution of these for experimental cultivation in the Dominions and Colonies. Funds have recently been placed at the disposal of the Ministry of Agriculture by the Empire Marketing Board to enable Kew officers to visit overseas parts of the Empire to advise the Governments concerned on botanical and agricultural problems. A botanical survey of the Empire, the fundamental basis for the development and exploitation of the natural vegetable resources, has been continuously in progress for upwards of three-quarters-of-a-century. The Governments of India, the Union of South Africa, and the West African Colonies maintain officers at Kew for the study of botanical problems of these particular areas, and negotiations are in progress for the interchange of scientific staff between Kew and other parts of the Empire."

Earthquake in New Zealand and its effect on Vegetation.—Through the kindness of Mr. Lionel de Rothschild we are able to publish the following extract from a letter by Mr. Edgar Stead, of Ilam, Riccarton, New Zealand, dated June 23, 1929:—From a horticultural point of view the big shake was very interesting. I was standing talking to one of my men on the other side of the stream, about eighty yards from the house, when the first tremble came. This was very slight, and ceased for some seconds before starting again with more vigour. I immediately moved that I might get a good view of the house to see how it fared. The 'amplitude' of the movement was big, but the 'frequency' low, and the motion was nice and smooth (like a long swell at sea) not jerky, and it is doubtless to this that the smallness of the damage may be ascribed. We could plainly see the earth heaving at the top of the terrace above the stream, just as one sees the surface shake when 'quaggy' ground is jumped on. The Azaleas on the bank began shaking their heads vigorously; indeed, one ten feet bush which I watched closely was moving far more than a man could have made it do. Then the big trees began to wave, and when the shake had been going for about half-a-minute and was at its height, the effect was positively amazing. The tall Lombardy Poplars near the house were whipping to and fro as if lashed by a gale, while a row of tall Pinus insignis was dashing about so that it looked as though they simply must break. In the big Black Poplar plantations the trees were banging against one another and knocking off small branches, and a similar state of affairs in a grove of Pinus maritima produced a rain of cones. The Oaks on the lawn, however, behaved in an entirely different way. No doubt they started to sway at the beginning of the 'quake, but owing to the rigidity of their stems and their very wide-spreading heads, they quickly took on a twisting motion as well as a swaying one. It will give you some idea of the amount of motion there was among the trees when I tell you that the height of the tree-background to the house was appreciably reduced, so that the building itself seemed to stand up abnormally high, the solitary thing in sight in which we could detect no movement. I confess I was expecting to see the house collapse at any moment, but it did not even crack, and nothing of importance was shaken down inside. My apprehension would have been much greater had I known my wife was inside. I thought she was in town, but she had not gone, and stayed upstairs with a maid, whose knees gave way, and who just hung on to the banisters. I went to the edge of the terrace and looked at the stream. I found no difficulty in walking, although, when standing still, I had thought I should do so. Where I stood on the bank, the stream takes a curve, and the whole surface of the water was much agitated, and mud was being stirred up from the bottom. In the small section of the stream which ran approximately east and west the water had a fine surge on and was slopping up on the banks a foot high. The day was calm, scarcely a breath of wind—and it produced an extraordinaily eerie effect to see all the trees being hurled about, without the accompanying roar of a hurricane—there was not much of a rumble, and only a loud rustling noise from the trees. I put it down as quite one of the most interesting and thrilling things I have seen in my life. Near the centre of the disturbance, trees were snapped off or tossed out, roots and all. A timber expert states that all the timber of that area will probably exhibit 'shakes' (cracks) in it as a result of the abnormal stresses to which it was subjected.

Flora of the Imatong Mountains.—In February, 1928, Major T. F. Chipp, Assistant Director of the Royal Botanic Gardens, Kew, paid a visit to the Imatong Mountains, Sudan, and collected about one hundred species of plants in a district not previously explored; indeed, no collections have been made hitherto on the high mountains immediately north of the Sudan-Uganda border. An account of the trip appears in the Kew *Bulletin* (No. 6, 1929), together with an enumeration of the specimens collected, observations on the phyto-geographical affinities of the flora of the Imatong Mountains, and descriptions of half-a-dozen new species discovered. These last are Combretum laboniense, Craibea utilis, Belonophora glomerata, Coreopsis Chippii, C. tripartita and Lobelia dissecta.

Legacies to Gardeners.—The late Edmund William Rickett, of Hillerton Cross, Bow, Devon, who died on March 13, 1929, left £100 a year to his head gardener, Mr. William Penney, so long as he shall reside with his wife, or if she shall survive him, £60 a year to Sarah Penney, and £26 per annum to Mr. John Lee, gardener at Spreyton, Devon.

A Method of Scaring Birds.—Mr. S. Leonard Bastin recently published an account in *The Field* of a successful method employed at an American plant research station for the scaring of birds from gardens and orchards. It is claimed that the majority of the mischievous birds in gardens, and especially sparrows, have a particular horror of blue paper, and the tests carried out in America would appear to verify this statement. Seed-beds had lengths of twine stretched across them and to these were attached strips of bright blue paper with the result that the birds left the beds severely alone, while the beds of Crocuses which had formerly suffered severely from attacks by sparrows were saved by pieces of blue paper held above them in cleft sticks. It is also stated that fruit trees and bushes can be perfectly protected from the ravages of birds by tying strips of blue paper or cloth at intervals along the branches. It would appear that birds do not overcome their fear of blue as they do of ordinary bird-scarers, and we suggest that readers who are particularly troubled with the ravages of birds might well give this method a trial.

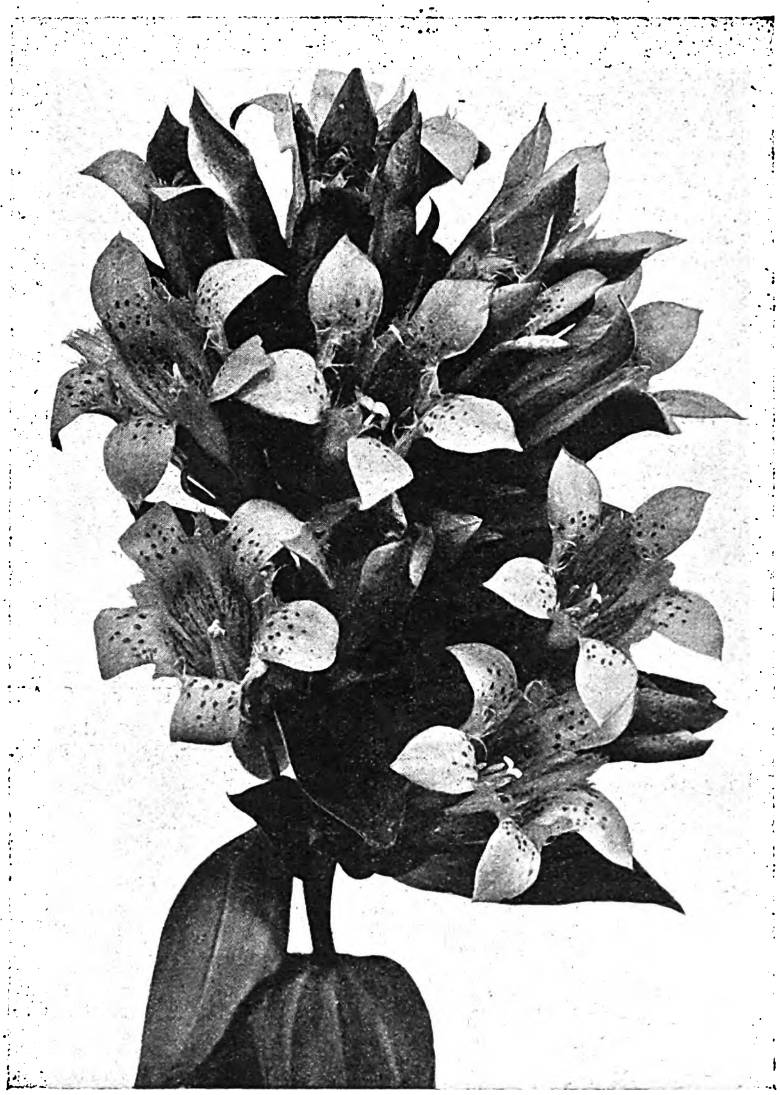


FIG. 50.—GENTIANA HASCOMBENSIS.

R.H.S. Award of Merit, July 30. A hybrid between G. Lagodechiana and G. septemfida var. cordifolia Flowers blue and white. Shown by Mr. C. T. Musgrave, Hascombe Place, Godalming. (see pp. 96 and 102).

Appointments for the Ensuing Week.—Tuesday, August 13: Royal Horticultural Society's Committees meet; Jersey Gardeners' Society's Exhibition; Clay Cross Floral and Horticultural Society's Show. Wednesday, August 14: Taunton Dene Horticultural Society's Exhibition (two days); Sheffield Chrysanthemum Society's lecture; Banff Horticultural Society's Exhibition. Thursday, August 15: Scottish National Sweet Pea, Rose and Carnation Society's Exhibition (three days); Aberdeen Royal Horticultural Society's Exhibition (three days). Saturday, August 17: High Wycombe and District Horticultural Society's Exhibition; Dumbartonshire Sweet Pea Society's Exhibition; L.M.S. Federation of Horticultural Societies' (North-east Section) Annual Exhibition; Leeds Paxton Society's Sweet Pea Show; Charfield Flower Show; Hemel Hempstead Horticultural Society's Summer Show; Highfield (Leicester) and District Gardening Society's Exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Clerodendron Bungei, alias foetidum.*—Perhaps "A. H." would like to know that a plant of the above survived a sharp winter in Messrs. Standish and Noble's nursery at Bagshot, and pushed up strong shoots from the roots in the spring. This was without any protection. All above ground in the winter was destroyed. M. Ortgies, of Ghent, M. van Houtte's representative, informed me a few weeks since that it is also quite root hardy in Belgium. I think it about as hardy as a Fuchsia. In lately noticing the plant in the *Chronicle*, you said, "If we can trust a figure of it published in the 'Flore des Serres,' it must be remarkably handsome." The drawing for that plate was made by me, and if (as I am assured, for I have not seen the plate) it is a correct copy, I can vouch for its accuracy to nature in size, form and colour. The plant from which the drawing in question was taken had four such corymbs, and was clothed with its large, handsome leaves to the rim of the pots. If well-grown, and it requires very liberal treatment, it is indeed very handsome; if starved, it degenerates to a scarecrow. The flowers are very sweet-scented. I should add that a plant which flowered in Belgium was quite equal to the drawing made here. *George Lovell. Gard. Chron., August 12, 1854.*

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester

The Cattleya House.—The various plants in this house are in different stages of growth; plants that have just passed out of flower and are in need of repotting should receive attention so soon as they commence making new roots, at which stage, if the plants are disturbed, they will soon recover and establish themselves much better than if the repotting is done regardless of the condition of the roots, and simply because it is the potting season. Provided the compost is not in a sour state, it is best to defer repotting until the production of fresh roots has commenced, no matter at what season of the year this may be. Some kinds have to make their growth after flowering and these will require plenty of water and generous treatment so soon as they have become established in the new compost. Such sorts as C. gigas and C. Warnerii will require to be kept on the dry side, just sufficient water being given to keep the pseudo-bulbs plump and encourage root action, and when re-established, more air and sunlight should be allowed to reach the plants in order to thoroughly ripen the growths and assist in keeping the plants in a dormant condition until they commence to grow naturally again in the spring. Unless the pseudo-bulbs of vigorous kinds such as C. gigas are well matured and ripened now, successful flowering cannot be expected next year. Other kinds are now growing fast and developing flower sheaths, and those varieties that produce their gorgeous flowers on completion of the growth, notably C. Hardyana and the many hybrids—Laelio-Cattleya Profusion, etc.—should be given a light position where a free circulation of air can be maintained on all favourable occasions, and as much sunshine as the leaves can withstand without injury. A good guide in this respect is that shade is required when the leaves feel hot when touched by the hand; the danger of scorching the foliage is not great when plenty of fresh air is circulating around the plants, but great fluctuations of temperature should be avoided so much as possible. A buoyant atmosphere should be maintained, sufficiently charged with moisture to promote growth; if harsh and dry conditions are allowed at this season the growths may receive a check and become stunted, with the result that deformed flowers] will be produced. As the growths advance and are nearing completion root action is generally increasing, therefore ample supplies of water are needed each time the compost approaches dryness until growth is complete, and if flowers are produced immediately, sufficient water should be given to allow for their full development, when drier conditions should be afforded.

Species and Hybrids.—Numerous species and hybrids will complete their growths and sheath now, but do not produce flowers until a later date. These sorts should receive generous treatment as to water, etc., until growth is complete, when only sufficient is required, at long intervals, to keep the pseudo-bulbs and roots in a plump condition. In the Cattleya group there are always individuals that call for special treatment in some detail, therefore no hard and fast rules can be laid down for their treatment; the grower has to use his discretion in these matters. Where Cattleyas, etc., have to be grown in the same division as Cypripediums or other moisture-loving Orchids, some difficulty is often experienced in ripening the growths well without exciting them into growth again. Better results are obtained if the plants can be removed to a division with a night temperature of 55° to 60°, where they can be kept drier and more air allowed, with plenty of sunlight, to strengthen the growths. Where a division is devoted to these plants their requirements are more easily maintained, as maturing plants can be kept together and treated accordingly.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Frost Damage to Fruits.—In the plantations here I have noticed that quite a number of Apples are badly marked with a brown russetting which was caused, no doubt, by spring frosts. The blemishes are only skin deep and are on one side, but they are not uniform, for some are near the eye, some at the stem end, and some on the side. Except with dessert varieties, this may not be a serious matter to the private gardener, but to the market grower, however, it must lower the value of the product very considerably.

Birds and Apples.—Birds are attacking the Apples earlier than usual this year, owing, no doubt, to the long-continued drought and lack of moisture. It shows remarkable instinct, for the birds invariably select soft-fleshed varieties, such as The Rev. Wilks, White Transparent, Lord Suffield and The Queen. Preventive measures in the case of bush trees are almost impracticable, and it is unwise to remove the attacked fruits, as the birds will then attack the sound fruits and increase the evil. Pears and Plums on walls should be protected by netting as a preventive measure against birds, particularly tits, which are most persistent in their attack upon Pears and other fruits.

Woolly Aphis.—This malignant pest is too frequently seen in gardens now-a-days, and there can be no doubt that it is the precursor of canker in Cox's Orange Pippin and other susceptible varieties of Apples. The trees should be gone over, branch by branch, and any trace of the pest, which is readily recognised at this period by the white, woolly substance excreted by it, should be eradicated by means of a painter's brush and methylated spirit, or a soft-soap and nicotine wash. Affected standard trees and those out of reach should be sprayed with a soft-soap and nicotine wash made up of 2 lbs. to 3 lbs. of soft soap and one-and-a-half ounce of pure nicotine to twenty-five gallons of water. This should be sprayed on with some force through a coarse nozzle.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Melons.—After this date, the nights will commence getting longer and colder, and calculations as to the time of ripening, and the quality of the Melon fruits, will be uncertain. Few persons care for late Melons, but the scarcity of choice Apples and Plums will justify an attempt to keep up a supply until November. Plants put out early in July will ripen their fruits in September, and seeds sown before the end of the month should provide plants which, under good ordinary management, should carry the supply through October. Of two evils it is better to sow rather early than too late, as October Melons come on slowly; but provided they are sound and of medium size they can be kept some time in a dry fruit-room or dry vinery. Light and heat are essential, but large masses of compost which cannot be dried and warmed quickly are objectionable, and for these late crops pots are to be preferred, as they can be plunged in a sharp bottom-heat, which can be renovated when necessary, the most critical periods being the setting and ripening of the fruits. Many state that all Melons are good when properly cultivated, but many of us have much to learn with regard to Melon-growing, and possibly the greatest mistake is that of over-feeding and allowing the bottom-heat to fall too low at the finish.

Cucumbers in Frames.—Cucumber plants in frames have done well, and those in full bearing may be well watered twice a week, well syringed overhead on alternate days, and the frames closed early to induce quick growth of both vines and fruits. If red spider or mildew attacks the plants, look to the outside linings and remove a few of the old leaves preparatory to the application of sulphur or sulphur-water, the best and safest remedy, always provided the lights are tilted early on bright mornings and lightly shaded during the day. It is not from the application of sulphur, or fumigation in a mild form that the plants suffer, but from a few minutes' neglect when the sun strikes the closed lights the following morning.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Bulbs for Forcing.—To be successful in the early forcing of such bulbous subjects as Roman Hyacinths, Paper White Narcissi, Tulips and Freesias, much depends on the condition of the bulbs procured, and if the bulbs have been specially grown for this purpose and are obtained from reliable sources, a large degree of success is assured. Orders for bulbs should be placed at once, and the bulbs, upon arrival, should receive immediate attention with regard to potting. After being potted they should be plunged in leaf-mould or ashes in a somewhat shady place until such time as growth is active, when they should be gradually exposed to the light and placed under warmer conditions in batches to keep up a continuous supply of flowers.

Freesias.—If a stock of home-grown corms is at hand, they should be shaken out of the old soil, graded and repotted. The largest bulbs should be selected for this purpose, and eight or ten bulbs placed in a four-and-a-half-inch pot. Ordinary potting soil should form a suitable rooting medium, and this should be pressed firmly about the corms. When potted, they should be placed in a cold frame and shaded from bright sunshine. Keep the soil just moist and admit air freely.

Primula sinensis.—So soon as the Primula sinensis seedlings are large enough to handle they should be placed singly in sixty-sized pots filled with a compost consisting of loam and leaf-mould in equal parts, lightened by a good sprinkling of silver sand. Place the roots well down in the soil so that the collar of the plant is just below the surface. Dust the surface of the soil with sand, then place the young plants in a cold frame, taking care to shade them lightly from the direct rays of the sun. Never shade them heavily for this will cause weakly growth. When the seedlings have filled these receptacles with roots, pot them on into four- or five-inch pots, in a compost of fibrous loam and leaf-mould with some spent Mushroom-bed manure or dry cow manure, broken charcoal and sand added. Water them carefully at all times—this is one of the most important details in their culture—and as the pots become well filled with roots, give applications of soot-water and weak liquid manure.

Gloxinias.—As the early plants pass out of flower they may be placed in cold frames and watered regularly until the foliage shows signs of dying, when watering should be withheld gradually. Young plants that were raised this spring will now have filled their receptacles with roots, and may be assisted with light doses of liquid manure; strong manures are not to be recommended, as their application has injurious effects upon the keeping qualities of the corms.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Leeks.—The main crop of Leeks should now be ready for planting out; allow sixteen inches between the lines and nine inches between the plants. When planted, water them in well if necessary, and hoe the surface of the bed frequently and regularly.

Onions.—The bulbs of these are now swelling and the tops may be turned down to encourage this process. Keep the bed free from weeds, pulling them by hand, and see that the Onions do not suffer through lack of water at this stage of growth; water them regularly if the soil is inclined to be dry, and afford stimulants in the form of liquid manure once every week.

Broccoli.—Further plantings of Broccoli may be made on any vacant ground. Give the plants every encouragement after planting by plying the Dutch hoe between them frequently, and so soon as they are of moderate stature, draw some soil about their stems to secure them against wind.

Seed-sowing.—Further sowings of Lettuces, preferably of black-seeded varieties, may be made in drills fifteen inches apart; sow the seeds thinly, and subsequently thin the seedlings to ten inches apart. For frame culture, sowings of Lettuces may be made now in an open border, transplanting the seedlings into frames when of convenient size, or the seeds may be sown in lines in the frames and the seedlings thinned to a reasonable distance apart when practicable. Further sowings of Radishes and Mustard and Cress should be made to provide successional supplies. Cultivate the ground well and make the surface as fine as possible before sowing the Radishes.

Late Peas.—Attend to late Peas, and if they are breaking away from the sticks, tie them in well. Should hawfinches prove troublesome protect the Peas with nets.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Lilium candidum.—When it becomes necessary to replant clumps of this Lily that have become over-grown, do not delay the work after the foliage has died down. Root action commences practically immediately the foliage had died down in this Lily, therefore no time should be lost if transplanting is contemplated. L. candidum thrives in any ordinary garden soil and dislikes being coddled and disturbed, the best examples being seen in cottage gardens where they have been undisturbed for years. If new plantations are being made, trench the site, but do not add fresh manure, old turfy loam being preferable. When planting, surround with, and rest each bulb on a bed of, sharp sand. In soils which are inclined to be wet during the winter I have found it a good practice to rest each bulb on a number of small stones; such a method insures the drainage of superfluous moisture from about the bulbs.

Myosotidium nobile.—This native of the Chatham Islands is really only of value as a hardy plant in the more favoured parts of the country. Where such conditions exist it is a plant well worthy of a specially prepared position. It has large, glossy, Funkia-like leaves of a bright green. The flowers suggest those of a giant Forget-me-not, in various shades of blue and borne on stems from two to three feet in height. Being found on sea-shores, it should be planted in a bed composed of practically pure sea sand, in which its thick root-stock will soon become established. A top-dressing of decayed seaweed has been found beneficial in promoting luxuriant growth. Incidentally, mice are extremely fond of the seeds, even before they are ripe.

Crocus species.—These are not so well-known in gardens as they deserve. The usual practice when planting Crocuses is to put in a number of the Dutch forms, but valuable as these are for making beds or banks gay during spring, their beauty cannot compare with that of the charming kinds found among the species. These, also, have the added advantage of flowering during autumn, winter and early spring, and are admirably adapted for growing in pockets in the rock garden. They are best planted under a carpet of some other plants, so that the blooms may be protected from being soiled during stormy weather, and so that no bare patches are visible after the Crocus flowers are past. Many dwarf alpine plants suggest themselves for this purpose. Arenaria balearica, Acaenas, the dwarf, mossy Saxifrages and numerous others, make admirable carpets and associate well with the Crocuses. Some of the smaller sorts are perfect gems and deserve special attention and positions where their enchanting loveliness may be fully appreciated. Others are so inexpensive that they may be used for naturalising in grassy banks, where they will form delightful pictures. The corms should be planted so soon as they can be procured; many kinds can be had during late July and August and if blooms are expected the first season, they should be planted at once. Autumn-flowering species include C. longiflorus, with soft, rosy-lilac flowers; C. nudiflorus, common in many parts of the country; and C. Salzmannii, which will naturalise itself under good conditions, and of which there are several varieties differing in shades of colour. C. Clusii, C. zonatus, C. sativus, C. ochroleucus and C. speciosus are all worthy of a place for autumn and early winter flowering. Other lovely species which will extend the flowering into the spring, are C. Imperati, C. Susianus, C. versicolor, C. Tommasinianus, C. Sieberi and C. chrysanthus.

Olearia stellulata.—The Olearias suffered considerably last winter, and many of the more tender varieties have been killed. O. stellulata came through the winter as successfully as the well-known O. Haastii, which seems nearly as popular in town gardens as Aucuba japonica. O. stellulata is a delightful plant, with its grey foliage and myriads of white flowers. Some confusion seems to exist between this and O. Gunnii, but when the two true forms are grown side by side the former is freer flowering and, in my experience, a little hardier. O. stellulata may be increased quite easily by inserting cuttings during August or early September, and these should make good plants for planting out in the spring.

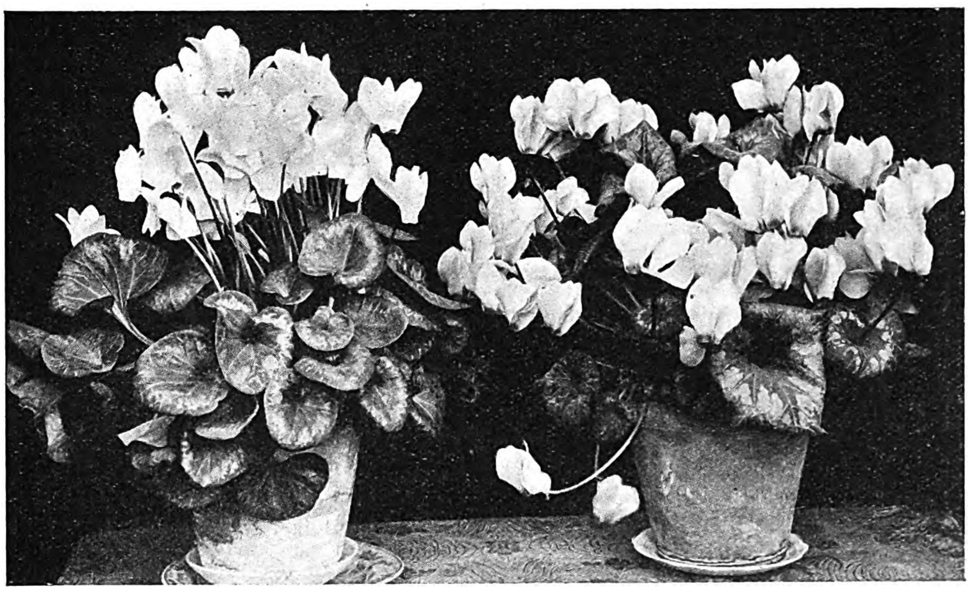


FIG. 51.—CYCLAMENS IN A COTTAGE WINDOW.
(see p. 110.)

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Violets.—The continued dry weather has been trying for these, unless they were planted in semi-shaded borders or daily syringings have been given. Deep cultivation of the site during winter where these are to be grown is necessary for their successful cultivation; the value of this is obvious during prolonged droughts. A thorough watering should be given, afterwards hoeing the surface to conserve the moisture; mulching with well-decayed leaf-soil or vegetable matter will be found beneficial; here, we find spent Hops useful material for this purpose; it is light, does not form a close mass, and yet prevents evaporation. A weekly dusting of soot will help to prevent attacks by red spider, which is so partial to this plant during dry weather. See that the undersides of the leaves are dusted and apply it only when the plants are damp so that the soot adheres to the leaves. No runners should be allowed to grow, the object being to build up strong crowns by early autumn before transferring them to their winter quarters in frames.

Romneya Coulteri.—Among hardy plants, few surpass the lovely Californian Poppy in beauty. In favoured districts this makes wonderful specimens in the open, but where climatic conditions are less favourable it is well worthy of the protection of a wall with a south or south-western aspect. It does best in light, warm soils, and where the natural soil is heavy, a position should be specially prepared for it by adding some light, sandy compost. A successful method adopted where the soil was of a heavy texture was placing flat stones of various sizes throughout the bed as it was prepared. The system seems to suit the plant admirably, the long, thong-like roots finding their way under the flat stones, and suckers springing up freely at some distance from the old plant. As a group for a hot, sunny position on the lawn, where it does well in the open, it is ideal. A mulch of some light, porous material over its roots during winter is advisable. Propagation is effected by seeds or cuttings; root-cuttings inserted in the spring make the best plants.

Celery.—In many districts the Celery crops have been attacked in recent years by a most destructive fungus or rust, which at once checks the growth of the plants and spreads with alarming rapidity. The appearance of this disease should be watched for, and the whole crop sprayed with lime-sulphur, one part to one hundred of water, repeating the application at intervals of a week until no trace of the disease remains. I am experimenting with ammonium polysulphide, which seems, so far, to be a good fungicide, but expensive in comparison with lime sulphur.

Cyclamens.—Seeds of Cyclamens should now be sown to produce flowering plants for next year. Pans or shallow boxes, well drained and filled with a light compost of leaf-mould, loam, sand and charcoal, passed through a quarter-inch riddle, using all the rough parts over the drainage, are suitable. Place the seeds regularly all over the surface, press them well down and cover with a layer of soil or sifted Cocoanut fibre. Water the seed-pans well and keep them in a temperature of at least 60° until germination takes place.

FLOWER GARDEN.

ASPERULA ORIENTALIS.

Some confusion would appear to exist as to the correct name of this charming little annual Woodruff. In catalogues it usually appears under the name A. azurea-setosa, or sometimes A. setosa-azurea. In the Kew *Handlist of Rock Garden Plants* it is given as A. azurea, while in the *Index Kewensis* it is referred to as A. orientalis, under which name Bailey also describes it in his *Cyclopedia of Horticulture*. It would appear, therefore, that its correct name is Asperula orientalis.

However, apart from the confusion in nomenclature, this charming hardy annual is a very attractive little subject, and suitable for a variety of purposes, for it forms a bushy mass nine inches or one foot high, of slender, branching growths, furnished with lanceolate, bristly leaves usually in whorls of eight, the little branchlets being terminated by small heads of light blue, sweetly-scented flowers, which are produced in succession over a long period.

As a ground-cover for large beds, with tall "dot" plants here and there, A. orientalis is very effective, and it may also prove valuable where the soil is on the poor side, while it is worthy of note that the dainty blue Woodruff does not object to slight shade, such positions often presenting problems to the gardener. To those who do not object to the use of annuals on the rock garden, A. orientalis can be recommended as very suitable for filling bare spaces.

As stated, it is a hardy annual, so that, if an early display—in April and May—is desired, seeds may be sown *in situ* in the autumn, the plants, although native to the Orient, being capable of surviving our winters, while for a summer and autumn display, seeds may be sown in spring, the plants being afforded the usual treatment recommended for hardy annuals in the matter of thinning and cultivation. *W.*

ALPINE GARDEN.

ONOSMA HELVETICUM.

Although O. helveticum is not so effective a plant as O. tauricum, which it resembles in the colouring of its flowers, it is yet quite a useful subject for the rock garden, as it produces its tubular, creamy-yellow flowers, up to one-and-a-quarter-inch in length, during the height of summer.

In habit of growth this species is not unlike O. arenarium, forming, as it does, a tuft of narrow, entire, dark grey-green, bristly foliage, above which arise, to a height of one foot or more, erect or spreading, forked stems, terminating in elongated spikes of blooms, which open in succession from the base upwards.

O. helveticum, a European species, can hardly be termed striking, neither its inflorescences nor the colour of the flowers being conducive to a bright display, but it is a useful addition to the rather limited number of summer-flowering rock plants, and on this account might well be given a sunny spot on a cliff ledge, or in a crevice, requiring to be planted, like the other Onosmas, in well-drained, gritty, loamy soil.

ARENARIA LARICIFOLIA.

It is surprising that Arenaria (Alsine) laricifolia is not more often employed in rock gardens, if only as a carpeting subject for dwarf bulbs—Crocus species, etc.—for which purpose it is admirably adapted, forming, as it does, a close but not too dense mat of fine, rich green foliage.

It is quite attractive, also, when in flower, for it produces an abundance of dainty sprays of Cerastium-like blossom, clear white, lightly and delicately veined with green, the whole forming a sheet of soft whiteness during the height of summer.

A. laricifolia occurs abundantly throughout the granitic formations of the Alps, and in rock gardens asks no more than a sunny position and light, stony soil, through which its long tap roots may penetrate to become lost in the lower levels. *M. W.*

VIOLA ALANNAH.

It is not uncommon that longer acquaintance with certain plants leads one to revise estimates of their value. There are some which fail to retain the high opinion held of them at first, and there are others, again, which have proved their value to such a degree that they rise several points in our estimation, and often render themselves indispensable. In this latter category I have placed the little hybrid Viola called Alannah. It originated, I believe, at Lissadell, and is understood to have been derived from V. bosniaca and V. gracilis.

When I acquired it first I considered its purple flowers rather dull, although relieved by the small yellow eye. I find, however, that its colour grows upon one and that V. Alannah is such a cheerful little plant, and such a splendid and obliging grower, that it is taking a high place in my garden where I have now many plants of it. It is of even dwarfer habit than such hybrids of V. gracilis, as Lady Crisp and Purple Robe, while it soon forms a large, spreading mass. It is so easy to propagate, by means of pieces pulled off with a root or two attached, that there is no reason why it should not be plentiful in any garden. It is a true perennial and very hardy, as was shown by its behaviour here during the past winter. *S. Arnott.*

HARDY FLOWER BORDER.

DRACOCEPHALUM NUTANS.

There are several species of Dracocephalum now in cultivation, and grown with varying degrees of success, notable among them being D. Forrestii, D. Isabellae and D. Ruyschianum, while previously included in the genus was Physostegia virginiana which, with its variety speciosa, is not infrequently met with in herbaceous borders.

It is surprising, however, that Dracocephalum nutans, from northern Asia, is not grown more extensively, as it is well worth a place either in the front of the herbaceous border, or on the rock garden, for it is a good perennial, is of bushy habit, and does not exceed one foot in height. The flowers are produced freely during the latter part of June and early July in densely-whorled, nodding racemes, the bright rich blue corollas and purple-tinted calyces producing a rich display of colouring.

D. nutans presents no difficulties in the matter of cultivation, its requirements being a warm and sunny situation and moderately light, well-drained soil, but it is advisable to guard against excessive moisture at the roots during winter.

LYTHRUM VIRGATUM.

It is only during comparatively recent years that the Willow Herbs have received recognition as garden plants, but now they are firmly established as both border and waterside plants, for which latter purpose they are specially adapted.

Lythrum Salicaria, our native Willow Herb, is familiar to everyone, being commonly met with adorning the banks of streams and other moist places, and there are now several forms of it which are distinct improvements on the type and are first-class herbaceous plants.

L. virgatum, the subject of this note, is not so robust and vigorous in growth as L. Salicaria, and is of such graceful charm that no garden should be without it. Although it is generally recommended as a waterside plant, such a position is not essential to its well being, for it will flourish in the ordinary well-made herbaceous border to which it will add distinction during the summer months.

This species is a native of Europe and northern Asia, and is stated to have been introduced to Kew in 1776, by Jacquin. It is figured in the *Botanical Magazine*, t. 1,003.

Free in growth, but not rampant, nor given to encroaching upon its neighbours, L. virgatum forms an elegant, bushy plant up to three feet high, its slender, branching growths being clothed with lanceolate leaves and terminated by charming spikes of bright, rosy-purple flowers, the whole plant, when in bloom, presenting a very bright and attractive appearance.

A very showy variety of this species, which is fast achieving popularity as a border or waterside plant, is that known as Rose Queen, which possesses the gracefulness of habit of the type, and has long, rich, bright rose-coloured inflorescences.

L. virgatum is one of the easiest of hardy herbaceous perennials to grow, flourishing in a deeply worked and well enriched border, and it may be increased very easily by division.

NEPETA MACRANTHA.

While Nepeta Mussinii is grown almost universally, and deservedly so, in gardens, it is not generally realised that there are other members of this genus which are highly attractive border plants, such a species being Nepeta macrantha, a native of Siberia and a good perennial. True, it is perhaps rather coarse for the small border, but in large herbaceous borders or in a sunny position in the wild garden, it will prove a delightful and showy subject. The drawback is its scent, which to some people is disagreeable; Wildenow, for instance, likened it to rancid oil.

It makes a dense, bushy mass of growths two-and-a-half to three feet high, its stems being furnished with short-stalked leaves, varying in shape from cordate to ovate-lanceolate, and green on both surfaces. The slender-tubed, rich lavender-blue flowers, each about one-and-a-quarter-inch long, are produced in whorls in the upper portions of the stems, so that when the plant is in full flower—during July—it is highly decorative.

N. macrantha, which is figured in the *Bot. Mag.*, t. 2,185, as Dracocephalum sibericum, is a good perennial, although in some gardens it would not appear always to be long-lived, and flourishes in ordinary garden soil, while it may be increased by division or by cuttings. *Kent.*

SOME SEDUMS.

Although many of the Sedums are not nearly so indifferent to drought as they are popularly supposed to be, several of them were remarkably bright and cheerful during the trying days of early July, when even Heaths like Erica stricta, four feet high, perished of drought. One of the most striking of these later-flowering Stonecrops is S. floriferum, which covered a square yard of a roasting border with its fresh green and two-inch cymes of golden-yellow blossoms. The flowering stems of this species do not rise above six inches and, the season being sunny, the colour effect is enriched by the reddening of the carpels. Even more pronounced in the development of this carpel colouring is the allied S. kamtschaticum, a more familiar species, which is taller than the preceding, but one, perhaps, not so effective for massing. S. Ellacombianum also belongs to this class, and it is not unlike S. floriferum in the tufted, dense growth of its vivid green foliage. The flowers are a clear yellow, produced in bold cymes, and prevail throughout July and August.

S. spurium in any good form is a very useful plant, ready to make the best of life and produce a bright show of colour under conditions that would try the temper of a House-leek. The crimson of the darkest kinds (var. splendens, for instance) is, perhaps, a trifle harsh, but some of the intermediate shades—rose, pink, pale lilac to white—are very attractive. A choicer plant is S. pulchellum, the moisture-loving, North American species, whose claw-shaped inflorescences, four or five inches across, are a beautiful rosy-purple. The linear leaves which crowd the low, sprawling growths of this fine Stonecrop are glaucous, the older ones often being tinted with the same colour as the flowers. S. pulchellum is worthily described by Dr. Lloyd Praeger as "one of the best Sedums in cultivation," but, even so, and despite its hardiness and ease of culture under proper conditions, it is not a common plant in gardens.

Some years ago, someone sent me a Sedum which I have only recently identified as S. monregalense. It may, quite likely, be something else—the race being so utterly confusing to anyone who is not a Praeger—but its very low growth, the four-whorled, oblanceolate, fleshy leaves, and the loose panicles of white, star-like flowers which terminate the hairy, four-inch stems in July, these and other features all point to that species. Moreover, this little plant has that marked preference for dampness and partial shade which the true S. monregalense is stated to possess, and which is an uncommon trait in Sedums. S. monregalense is stated to be a native of south-east France, Corsica and Italy, but the plant I have described is unquestionably hardy.

S. Praegerianum, which comes from Tibet, is a very distinct species, its prostrate summer growths radiating from the central rosette like the spokes of a wheel. These branch at the tips and, bearing large, egg-shaped flowers of a bright rosy-pink, surround the wheel with a ring of colour. This interesting species is hardy, but I have not yet found a spot quite to its liking. In a dry moraine it has succeeded tolerably well, but it is impatient of drought and seems to resent too fierce a sun. Near to this comes another Tibetan, S. primuloides, which makes a bushy little mound of dark green, obovate leaves in dense rosettes. The white, egg-shaped flowers, contracted at the mouth like those of a Heath, are borne in August in clusters of two or three. Although quite hardy, S. primuloides seems to suffer from excessive winter wet, but the fact that it is almost deciduous often makes it look more uncomfortable than it really is. I have it doing well in a pig-trough, with full exposure.

S. Anacampseros is always worth a place among plants of its kind for the sake of its neat rosettes of steely-blue foliage which is evergreen in mild districts, but its dull, purplish flowers are beyond hope, even in August. The allied S. Ewersii is a good plant for associating with such as the foregoing in a dry spot, the glaucous foliage being decidedly attractive. The flowers are a somewhat dull purple, but if they are not so handsome as those of the very similar S. Sieboldii, they do appear in August, whereas those of the latter often fail to show before October or even later. An unusual form of S. Ewersii came into my hands a year or so ago labelled "S. E. var. Ellacombianum." This is a beautiful plant, very vigorous and with larger leaves and taller growths than in the typical S. Ewersii. But the most notable distinction is in the flowering stems which, instead of consisting of a single umbel, as in the last-named species, have several lateral pedicels, two or three inches long, each terminating in a cyme of the bright purple flowers. If this description catches the eye of any authority on these things, perhaps he will tell me what the plant is.

S. oreganum and S. divergens, both worthy of being well-grown, so vivid is the rich golden-yellow of their flowers, will not be passed by at this season, for it is now that they assume their brilliant leaf-colour. Grown in a hot, sunny place and poor soil—if acid, so much the better—these Oregon species are often exceedingly brilliant, the fleshy leaves and branches developing bright shades of crimson and blood-red. S. Douglasii, the purple-leaved forms of S. spathulifolium, and S. Lydium are also among the kinds whose foliage becomes flushed with those ruddy, late-summer tints which contrast so strikingly with the cool, silvery-blue-greys and opal shades of other Stonecrops. *A. T. J.*

INDOOR PLANTS.

HYMENOCALLIS AMANCAES.

Nearly twenty years ago I was in Peru for the opening of a railway running from Lima to Ancon, and a special train was provided for the inauguration. About midway between these two towns, I noticed, from the window of my compartment, a single, yellow flower, growing on rising ground quite near the railway line. For the first and probably last time in my life, I pulled the communication cord, and the train was stopped by the engine driver with a sharp jerk, to the consternation of the officials. However, before they could make any enquiries, I was out of the train and running back to try to find the flower of which I had had a glimpse. This was not difficult, as it was standing well up above a mass of foliage, and I found that I had come upon half-an-acre or more of the Peruvian Daffodil, Hymenocallis (or Ismene) Amancaes.

The only plant in flower was the one I had seen, which was lucky, as I should probably not have stopped the train to examine the green leaves even if I had noticed them. The officials were by this time getting rather restive, as a formal reception had been arranged at the other end of the line, and we were already behind time; so I agreed to get back to my compartment if the spot was marked, and they promised to stop the train there on the way back, which was done! I had no digging tools with me, but the engine driver and stoker came to my help with shovels, and in a short time we had collected a nice lot of sound bulbs. These I took home with me, a long journey, via Chili and Argentina, but I managed to dry the bulbs slowly, and they arrived in good condition. I distributed a number to various friends, and tried some in the open in a warm border, but these latter were killed by the damp in the first winter. I still have one large pot of bulbs, and these have flowered regularly every year and increased slowly; this year they are better than ever and in every way stronger and more floriferous than any I have seen in their native land.

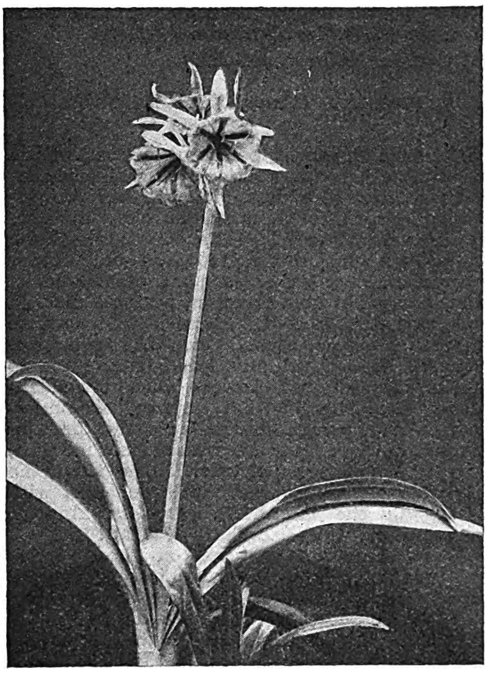


FIG. 52.—HYMENOCALLIS AMANCAES.

Fig. 52 shows the earliest plant with three, expanded flowers—there are four buds to follow on—which is, I think, a record, as, up to now, I have never had more than four to five flowers on a scape. The flowers are very sweetly scented, three inches across, yellow, striped with green, and the flat scape is over three feet high.

As with all Peruvian bulbs, Hymenocallis Amancaes must be kept quite dry during the resting season; when the leaves have died down I cover the pot with a sheet of glass and the plants receive no water until the new growth is two to three inches high in early summer; from then onwards the plants must receive increasing amounts until the flowers are over, when water must again be decreased. It should not be forgotten that in the coastal districts of Peru it hardly ever rains, the only moisture which vegetation ordinarily receives is from drizzles, heavy dews and mists; all plants from these parts and from the north of Chili must, therefore, be kept decidedly on the dry side, except when in full growth if they are to be grown successfully.

I have lately received consignments of other bulbous plants from Peru, but the only ones which have flowered up to now are Zephyranthes aurea, Z. carinata and Hippeastrum equestre. About the others I hope to report when they have flowered. *Albert Pam, Wormley Bury, Hertfordshire.*

CHRYSALIDOCARPUS LUTESCENS.

Unfortunately, the extensive collections of stove plants, which at one time were a feature in private establishments, are now but a memory. It is whispered, however, that interest in tropical exotics is reviving, and their cultivation rapidly extending.

The singularly graceful Palm, Chrysalidocarpus lutescens, was never at any time a common plant. Its general appearance, when young, resembles the better known Cocos Weddeliana, or Geonoma gracilis. The individual pinnae, however, are broader, and more widely spaced on the arching rachis. The most distinctive feature is the cluster of miniature plants growing at the base and feathering the main stem. These are not sucker-growths, as in the case of the Rhapis Palm, but spring from buds at the base of the main stem, as with Pandanus Veitchii, and, like Pandanus, the young plants may be detached with roots attached, and if carefully removed, and after being potted into small pots are plunged in bottom-heat in a propagating case, will eventually become established. Their removal detracts from the unique appearance of the parent plant, and only for purposes of increase is the operation advised.

The cultural requirements of this native of Mauritius are similar to those afforded other tropical Palms. Briefly stated, a rather close, warm, moist atmosphere during the growing season, with less moisture and a slightly lower temperature during the winter, are required. It grows well in a compost of fibrous loam, peat, leaf-mould and sharp sand, until it reaches specimen size, when, in common with the majority of Palms, a harder diet of fibrous loam with a dusting of bone-meal, suits it best. *Jonathan Fiona.*

ORCHID NOTES AND GLEANINGS.

COELOGYNE SPECIOSA.

Coelogyne speciosa is a very attractive Orchid. It has ovoid, four-angled pseudo-bulbs, one inch to two inches long, each bearing one thin, plicate, lanceolate leaf, which is about nine inches long. The flowers are produced singly or in pairs on a slender peduncle from the axil of the young leaf; each flower is about four inches in diameter. The sepals and petals are buff-coloured, the latter being much narrower than the sepals. The lip is large and very beautifully marked; the side lobes are erect, buff-coloured and thickly mottled with reddish-brown within; the front lobe is spreading, with two long, fimbriated keels running from the base, the tip and edge of the lip being olive-brown in colour. This species exhibits considerable variation, one form having a yellowish lip, with white edges.

C. speciosa is an epiphyte, and is a native of the Malay Peninsula, where it is found growing on trees in the dense jungle forests; it has also been found on rocks. When in flower, the temperature of the intermediate house should be found suitable for this species, but during the growing season it should be removed to the Cattleya house, or the growths may become stunted. The plants should be repotted or top-dressed so soon as the flowers are over, a compost consisting of equal parts Sphagnum-moss and fibrous peat, with the addition of a little silver sand, being most suitable.

In Malaya, the stems of Tree Ferns are sawn into lengths of from twelve to eighteen inches, and after the pith has been removed they are filled with a mixture of leaf soil, Sphagnum-moss and sand, in which plants of C. speciosa are grown successfully This species has a long flowering season in this country, commencing in April and continuing until July. *F. S. Banfield, F.L.S., Malaya.*

THE GENUS PRIMULA.

(*Continued from p.* 94).

PETROPHYES (Balf. f.). Plateau P. (Amethystina.)

This charming plant, which is possibly a sub-species of P. Virginis, produces a rosette of smooth, non-mealy leaves about one-and-a-half inch long, with leathery, glaucous, narrowly lance-shaped pointed blades, tapering into a membranous-winged stalk, dilated and sheathing at the base, about equalling the blade in length; margins edged with white cartilage and furnished with recurved, somewhat sharp teeth. Flower stem about three inches tall, dark purple, rough, minutely downy, bearing a one-sided umbel of three to five somewhat nodding, bright blue blossoms on slightly downy stalks about a quarter-of-an-inch long. Corolla concave, about three-eighths-of-an-inch across, divided into five small, rounded or oblong, entire or slightly notched lobes; tube about one-eighth-of-an-inch long, shorter than the calyx, with a small ring in the mouth.

Grows on the rocky plateau of Yo-Chow, in Hunan, at about 10,000 feet above sea-level.

Culture: As for P. amethystina.

PINNATIFIDA (Franch.). Feather-leaved P. (Muscarioides).

A beautiful species with a tuft of oval or oblong leaves from three-quarters- to one-and-a-quarter-inch long, and a half- to three-quarters-of-an-inch wide, wedge-shaped at the base, tapering to a narrowly-winged stalk equalling the blade in length; margins cut into square or oval lobes, which are again lobed like the fronds of the Male Fern; both surfaces thinly covered with fine white down, especially on the nerves and margins of the leaf. Flower stem two to nine inches tall, smooth below, mealy at the tip, bearing a head of numerous reflexed, fragrant blossoms, varying from deep rich purple to pale purplish-blue. Corolla about five-eighths-of-an-inch long and three-eighths-of-an-inch across, cup-shaped, divided into five oval, entire or obscurely notched lobes; tube cylindrical, three times as long as the calyx. Flowers in July and August. Introduced in 1908. *Gard. Chron.* Suppl. Illus., May 11, 1912.

Grows in damp pastures and among masses of shattered limestone, in peat, at 11,000 to 15,000 feet above sea-level, on the Lichiang range, in north-western Yunnan.

Culture: Grow it in rich, somewhat heavy loam, kept saturated when the plant is in growth, or in the bog garden, in peat. It is quite hardy.

PLATYCRANA (Craib.). Broad-headed P. (Denticulata.)

This rather attractive member of the Denticulata section has a rosette of leathery, broadly lance-shaped or oblong-lance-shaped leaves tapering to a broad, sheathed, reddish stalk, in all from three to five inches long; margins recurved, furnished with sharp, sub-regular teeth; upper surface very deeply nerved, underside covered with short, meal-producing, glandular hairs. Flower stem twelve to sixteen inches tall, stout, sparsely coated with white meal upwards, and bearing a head of lilac blossoms with a yellow eye. Corolla about five-eighths-of-an-inch across, with egg-shaped, bilobed or toothed segments; tube cylindrical, about half-an-inch long. Flowers in May. Introduced in 1917.

Grows in damp, alpine pastures in the Bhutan Himalayas.

Culture: As for P. denticulata.

PLEBEIA (Balf. f.). Plebeian P. (Petiolaris-Sonchifolia).

A dwarf, non-downy perennial species with a slender rootstock and a tuft of membranous leaves from two to three inches long, with elliptic or oblong-elliptic or sub-rotund blades, usually abruptly contracted into a wedge-shaped, scarcely winged stalk; margins edged with sharp, sinuate teeth; both surfaces covered with minute, meal-producing, glandular hairs. Flower stem about two inches tall, more or less dusted with meal and bearing an umbel of two to four rose-coloured blossoms on slender, erect stalks about three-eighths-of-an-inch long. Corolla concave, about five-eighths-of-an-inch across, with spreading, broadly heart-shaped or egg-shaped, very deeply-notched lobes; tube funnel-shaped, as long or slightly longer than the calyx.

Grows in the valley of Tsetshoupa, in Szechuan at about 8,700 feet above sea-level.

Culture: As for P. petiolaris.

POISSONII (Franch.). Poisson's P. (Candelabra.)

A beautiful, robust, perennial species, with a large tuft of smooth, non-mealy, rigid, somewhat leathery, more or less glaucous leaves, with oblong-lanceolate, blunt blades eight to nine inches long, tapering to a short, sheathing stalk; margins sharply toothed and folded upwards more or less on each side of the midrib, crisped and twisted; upper surface smooth, underside gland-dotted. Flower stem twenty to thirty inches tall, stout, smooth, bearing five to seven superposed umbels of from three to fifteen rose-coloured flowers with a golden-yellow eye. Corolla flat, about one-and-a-quarter inch across, divided into five broadly heart-shaped, notched lobes with toothed margins; tube funnel-shaped, slightly longer than the calyx, downy within, red inside and out, with a ring in the mouth. Flowers in August. Introduced in 1889. *Bot. Mag.*, t. 7,216.

Grows in damp pastures on the margins of forests in Yunnan, western China, at altitudes from 5,000 to 12,000 feet above sea-level.

Culture: Good fibrous loam and grit, in an open, but sheltered spot, with an abundant supply of water when the plant is in growth, and protection from severe frosts, are the conditions indicated. *A. W. Darnell.*

(*To be continued*).

THE CULTIVATION OF NEW ZEALAND PLANTS IN BRITAIN.*

(*Continued from p.* 93).

(c) Grown by Specialists.—By far the greater number of New Zealand plants in Britain are to be found only in public botanic gardens, such as Kew, Wisley and Edinburgh, or in the gardens of such enthusiasts as Major Dorrien Smith, Mr. Gerald Loder, Mr. F. W. Millard, Captain Simpson Hayward, etc., who take a special interest in them, and are continually importing them by all the means in their power. Edinburgh has been especially favoured, as many Otago botanists and gardeners, and others of Scots nationality, like Mr. Guthrie Smith, have sent thither plants and seeds in great quantities for many years past.

It would be hopeless to attempt here to give any idea of the wealth of our flora as represented in these specialists' gardens. I listed as many as two hundred species in one place. Naturally there is a good deal of reciprocity among the enthusiasts, and one sees the same plant, often a rare or unexpected one, again and again. For example, I saw in many different places, Veronica Catarractae (and varieties), V. Lyallii, V. Bidwillii, V. albicans, V. cassinioides, and many others. Epilobium nummularifolium, E. pedunculare, E. chloraefolium, Celmisia holosericea, C. Mackaui, C. densiflora, C. Lindsayi, Olearia cymbifolia, O. semidentata south and west only), O. moschata, Corokia Cotoneaster, Discaria Toumatou, Raoulia subsericea, Coprosma Petriei, C. Cunninghamii, C. parviflora, Helichrysum Selago, and H. bellidioides, Leptospermum scoparium and L. ericoides, Carmichaelia Enysii, Senecio Bidwillii, various species of Nothofagus, and so forth.

British gardeners have devoted a good deal of attention to the more promising of our plants and sought to improve them, with one very remarkable success or series of successes. Starting with the large-leaved Veronicas of various kinds, such as Veronica speciosa, V. macrocarpa, V. Lewisii, V. Dieffenbachii, V. salicifolia (and others—it would be impossible now to disentangle the strains involved) they have produced a large group of most beautiful and ornamental plants, some of which seem to be quite hardy, while others are as yet confined to the south and west. Some of them are doubtless well-known in New Zealand. The plants of this group have generally very large leaves and long spikes of handsome flowers with a great range of colour. Among the chief favourites are Blue Gem, Autumn Glory, Autumn Queen, Sargent, Splendour, Gloriosa, and one for which I got the name of "Gauntletii," but am not sure of the spelling. The colours range from pure white to deep purple, and some of them are extremely ornamental—I liked best a kind of salmon-pink variety which is very generally grown. In one nurseryman's list (from Penzance) the colours offered are pale lavender, deep blue, white, white and lavender, purple mauve, magenta, shaded red, tinted blue, brilliant red, magenta-purple and deep pink. I have seen some of these, flowering very late in the season, in Kensington Gardens, the Embankment Gardens, Chelsea Hospital Gardens and elsewhere in London, but the best and the greatest variety is found in the south and west.

Apart from this group there are a bewildering number of Veronica hybrids in most of the specialists' gardens. Some of these, such as V. Balfouriana and V. edinensis originated in Edinburgh, where one man (the creator of V. edinensis) specialised in this work. Others seem to be more or less accidental crosses, and these gardens are full of puzzles and of names which are unknown to the New Zealand flora. I hope that I was of some use to my various kind friends in correcting the inevitable mistakes in their nomenclature, but I was again and again completely baffled by the Veronicas which I saw and upon which I was asked for an opinion.

A most interesting cross has appeared at Tresco Abbey, where the common Cabbage Tree has hybridised with Cordyline Banksii, and the result is a very curious tree, large and handsome, with pendant leaves, combining the characters of the parents. Some of the Olearias and Pittosporums in Germany seemed to me to be probably hybrid. I saw one also very remarkable cross, the only one of its kind, I think, as yet recorded. This was in Mr. Ingwersen's garden near East Grinstead in Sussex. Here a plant of Epilobium chloraefolium (the very large-flowered form called by Dr. Cockayne E. kaikourense, I think) had crossed with one of the English wild species (E. roseum, probably), and the result was a very ornamental and pleasing plant, quite worthy of being followed up.

The hybrid Leptospermums produced by the Rev. A. Boscawen, of Ludgvan, Cornwall, are quite celebrated, the best known of these being the variety which bears his name. Unfortunately, these were not flowering when I visited this garden.

A hybrid Corokia, C. virgata, is grown at Kew.

(*To be continued*).

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*By Professor Arnold Wall, Canterbury College, Christchurch, N.Z. Reprinted from *The Press.*

TREES AND SHRUBS.

LONICERA SPLENDIDA.

A specimen of this rare Honeysuckle sent me by a generous Cornish correspondent a couple of years ago, came through last winter without the slightest injury. It is a robust grower, putting forth slender shoots several feet in length, so long, indeed, that it does not look like being much of a success on the eight-feet wall which it has surmounted. In fact, it would probably have scaled twice that height had not accidents occurred to its leading branches, which makes me think a pillar (or flag-staff) might prove a more suitable support. So far, this plant has maintained rather a thin, straggly habit. This, however, might be the result of the wall treatment, and it would be interesting to learn how it does under other conditions.

L. splendida, nevertheless, thoroughly deserves its specific name, for its foliage and the whole of the young wood is so glaucous that it might be dusted with a blue-grey meal. The upper pairs of leaves are completely united (connate) around the stem. My plant gave some blossoms this year about mid-July. The corollas, rather more than one-and-a-half-inch long, are lilac-tinted on the outside and yellow within. These flowers have a most delicious fragrance, the "drowsy syrups" of the common Honeysuckle clarified of their sultry sweetness to a degree of rarest refinement. It may be of interest to add that while a plant of L. ciliosa, growing within a few feet of L. splendida, was all last summer infested by white-fly (which has not re-appeared) the latter species remained untouched.

HYDRANGEA PETIOLARIS.

This climbing Hydrangea is a useful plant for quickly covering walls or old trees, to which it clings by aerial roots after the manner of Ivy. It is a deciduous species, a native of Japan, and the glossy, Apple-green, heart-shaped leaves make a highly attractive covering, especially as they turn a vivid yellow before falling in autumn. The flowers are not particularly striking, being small and greenish-white, but the broad corymbs are adorned by a few pure white bracts of sterile blossoms at the margins.

H. petiolaris is extraordinarily vigorous and rapid in growth. A plant put in at the base of an old, leaning Alder a few years ago has now grown twenty-five feet in height, completely enveloping the trunk of its supporting tree. But H. petiolaris is so adaptable that it may be used for covering rocky banks, and it makes a distinctly attractive mound planted as a bush in the open with a few stumps to ramble over. *A. T. J.*

CRATAEGUS CARRIEREI.

A fine stem, a sturdy conical shape, dark green foliage, and many fruits in November (retained throughout the winter) are a few outstanding merits of Crataegus Carrierei (C. Lavallei). It is sparsely armed with long, stout thorns, and it seldom reaches more than twenty feet in height. The leaves are downy beneath, obovate or oval, and coarsely toothed, The corymbs of large, white flowers are produced in great quantity in June, and these give place to the countless fruits, which are spotted with brown. They begin to colour before the leaves fall in December, from pale yellow to orange-scarlet, and persist until the spring.

As Mr. Bean states, this Thorn is believed to be either a seedling variation of C. stipulacea (differing from this by the globose fruit having a Pear-shaped base and being richer in colour), or a hybrid between C. punctata and C. Crus-galli. Although the subject of these notes has dotted fruits reminiscent of C. punctata, and they remain on the tree, as do those of C. Crus-galli, both these supposed parents are more glabrous than C. Carrierei.

Being of neat habit and small stature, it is suitable for most gardens, and is generally grown as a standard. *Graham S. Thomas, Cambridge.*

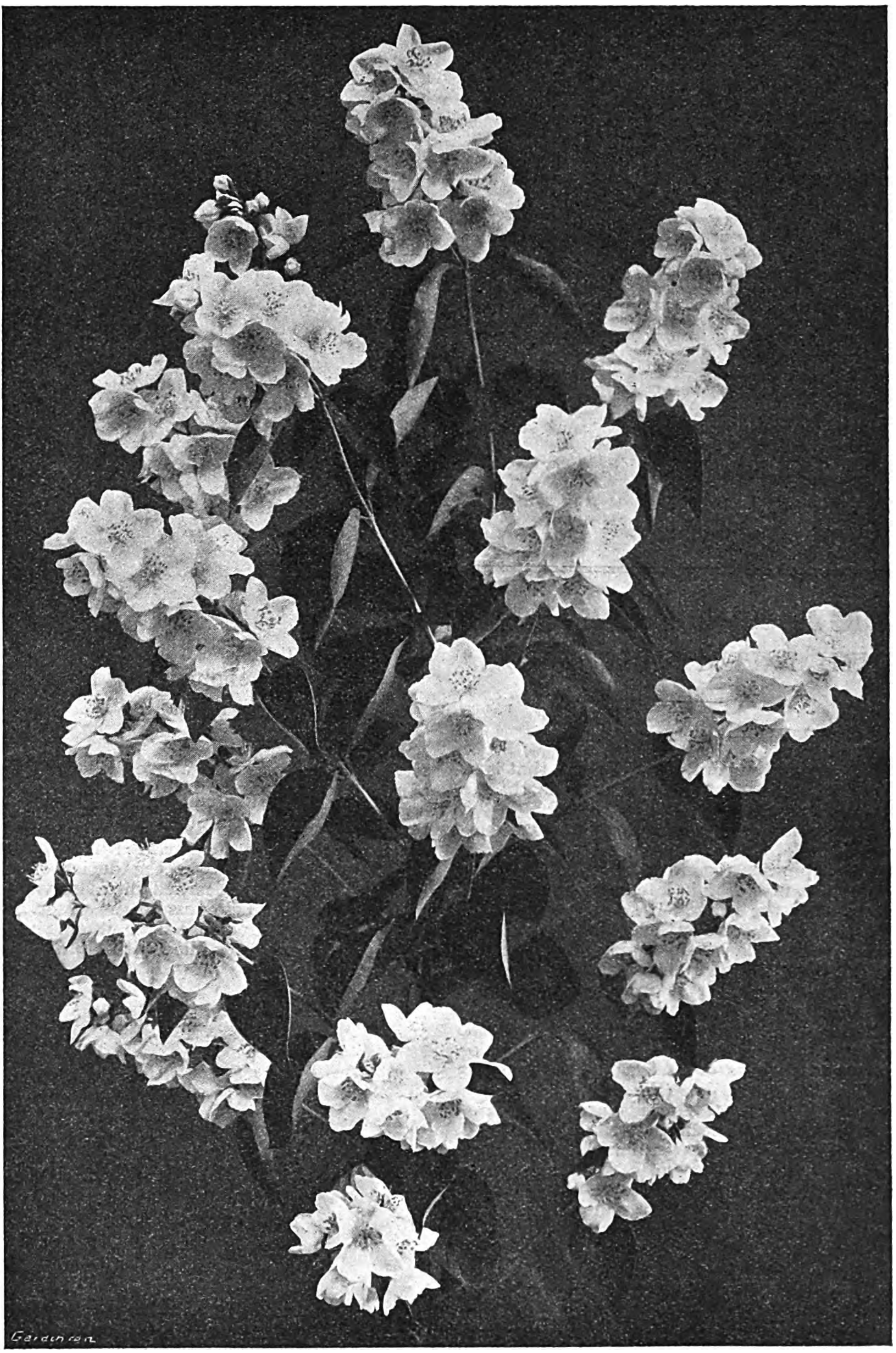

FIG. 53.—PHILADELPHUS INSIGNIS.

R.H.S. Award of Merit, July 16. Flowers white and fragrant. Shown by Mr. C. T. Musgrave.

(see p. 58.)

DESFONTAINIA SPINOSA.

Most lovers of shrubs will agree that this is a very desirable plant, and the difficulties attending its cultivation usually only add to the determination to succeed in making it thrive.

The greatest drawback in this respect is undoubtedly its slowness of growth—a specimen six or seven years old may not exceed a foot in height—and although we cannot materially hasten it, this shrub may at least be encouraged by good soil and a cool, moist position for its roots; partial shade also seems to assist. The other fault lies in the fact that it is not entirely hardy, although much more so than most people imagine; in districts subject to severe frosts it requires the shelter of a wall, while cutting east winds are also detrimental; near the coast it is perfectly happy in quite an open position. No doubt if conditions are to its liking, it will reach maturity earlier, but I have not seen a flowering specimen under thirty inches in height.

D. spinosa grows into a thick, upright bush, attaining perhaps to ten feet; the leaves are opposite, but otherwise closely resemble those of Holly, being dark, glossy green, with a waved and spiny margin. The flowers are funnel-shaped, about two inches in length, and half-an-inch across the mouth; in texture they are thick and waxy. The tube is a brilliant scarlet, and the mouth of the corolla deep butter-yellow, the two colours blending gradually, and forming a superb contrast to the shining foliage.

Desfontainia belongs to the Order Loganiaceae, and is a native of Valdivia and other parts of South America, whence it was introduced by the Messrs. Veitch about 1843. It is figured in the *Bot. Mag.*, t. 4,781. *B. O. M.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXVII.—AN ALPINE CAMP.

THE upper Temperate Rain Forest, that is to say, above 8,000 feet, is not exactly the place where one would look for Orchids, at least epiphytic species, despite their abundance in the jungle below. Small ground Orchids, often saprophytic, abound in the damp coolness of the forest, flowering in late summer and early autumn after the ground has been warmed up and well soaked. Nevertheless, two epiphytic species, which flower in June, are common, ascending to quite 10,000 feet. These are Coelogyne cristata, or it may be C. ocellata (Fig. 55), and a purple-flowered Pleione; the former growing in big clumps up in the trees, the latter usually solitary, growing on moss-covered rocks or in cushions of moss on the heavy laden Conifers (Fig. 57).

Above 10,000 feet, Orchids are more rare; yet it is here that the most striking are found, and three species of Cypripedium deserve notice. The first is the well-known C. tibeticum, whose big chocolate bags may be seen lolling on open, grassy slopes. With it is sometimes found a smaller species with a redder pouch and more brightly striped petals. Finally, growing with these two I found yet a third species, much smaller and daintier, about the size of C. guttatum, its little milk-white pouch neatly speckled with purple. The fine yellow-flowered C. luteum does not grow here.

Towards the end of the month of June, having made several trips into the alpine region, and desiring to climb still higher, we persuaded four Mishmis to carry loads up for us; more we could not get, so five days was the maximum time we could cater for. Bedding, a small alpine tent, drying paper, and food made up the bulk of the loads; and as our cook had to be left in charge of the main camp we had to cook for ourselves. June 30 was actually a fine day, the coolies arrived in camp that evening, and on July 1 we started up the ridge in sunny weather. A camping site was selected on the ridge just above the last Fir trees, at an altitude of about 12,000 feet, and the coolies having dumped down their loads, departed, leaving us to our own devices. We pitched the tent over a carpet of dwarf Rhododendrons, and Buttercup took over the duties of cook. But first we had to descend into the valley a few hundred feet below us to get water. This valley, a mere basin on the slope, where the snow lingered late, was now filled with alpine flowers, the most abundant being a maroon-red Nomocharis, which grew in hundreds on the rubble mounds, with an egg-yellow Lloydia, and a blue Corydalis; two species of Anemone, one with purple the other with cream flowers; and the Gamboge Primula which sheeted the grassy slopes. On some of the earth banks such as were not already swamped with these flowers, I found a tiny 'Soldanelloid' Primula. These gems are too delicate and rarefied for our gardens, even if they would grow there, which they will not; but they are ever a joy to the botanist. Our wee plant, barely an inch-and-a-half high, carried one, or two, rarely three, pale violet bells on its thread-like stems, and recalled two species collected in the Seinghku valley in 1926, Cherry Bell (P. silaensis) and Blue Microbe (P. fea). The latter, however, is a rock plant, and Cherry Bell has flowers of quite a different colour, so I conclude that the Kaso 'Soldanelloid' is a new species.

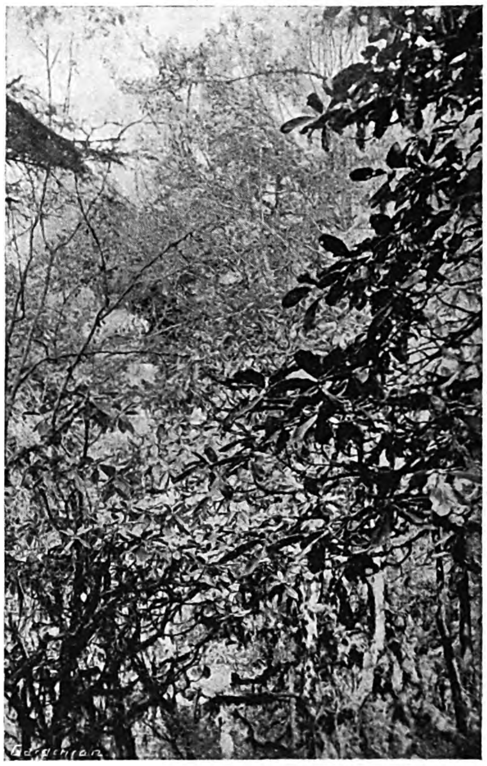

FIG. 54.—RHODODENDRON FOREST.

9,000 feet altitude.

The afternoon was now far spent and the sky completely overcast. It was time to prepare for the night, so having filled the petrol can with water, we started up the steep slope, alternately carrying this awkward 20 lb. load. We had almost reached the top when disaster overtook us. Exhausted with barging through a tangle of Rhododendron scrub, I set down the can on the steep face; it slipped, and toppled over. For a few seconds I watched it, fascinated, as though paralysed with horror, while trying to regain my breath. Before I could put out a hand to save it, the heavy tin was rolling, jumping, plunging down the slope! We caught one glimpse of the scarlet missile flying through the air in an immense final bound, and then it was lost to sight and sound. We rushed down the slope, although I felt convinced that our only water can had taken the valley in its stride and was lost evermore in the main, thousands of feet below; probably it would hit a tree and explode. Imagine my joyful surprise, therefore, when I found it lying on its side buried in the basin of flowers, not far from where we had drawn our water! It was much battered and bruised, leaking, too, but not irreparably damaged. So we lugged it up the hill once more, and this time reached camp without mishap. By this time it was raining. An hour was spent trying to light a fire, but at dusk we gave it up, crept into our tent, ate a cold sardine, and went to bed.

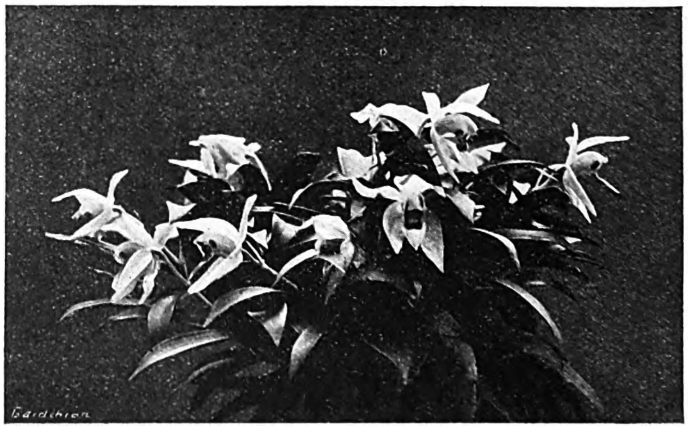

FIG. 55.—COELOGYNE OCELLATA (?).

10,000 feet altitude.

The next three days were much alike, fine first thing in the morning, wet the rest of the day. I explored the ridge so far as the foot of the final precipice, where there was still a lot of snow lying, and descended into the gullies on either side. We seemed to be quite a month too early for the high alpine flowers, other than Rhododendrons and Primulas. The former were nearly all over. On the high turf slopes, tussocks of R. campylogynum were just coming into flower, and another similar species with pink flowers was in bloom. On the rocks a prostrate 'Anthropogon' with wiry stems and tight heads of large, pale pink flowers was breathing its last, and the blood-red rivulets of R. repens had cooled off like slag. A few heaps of the

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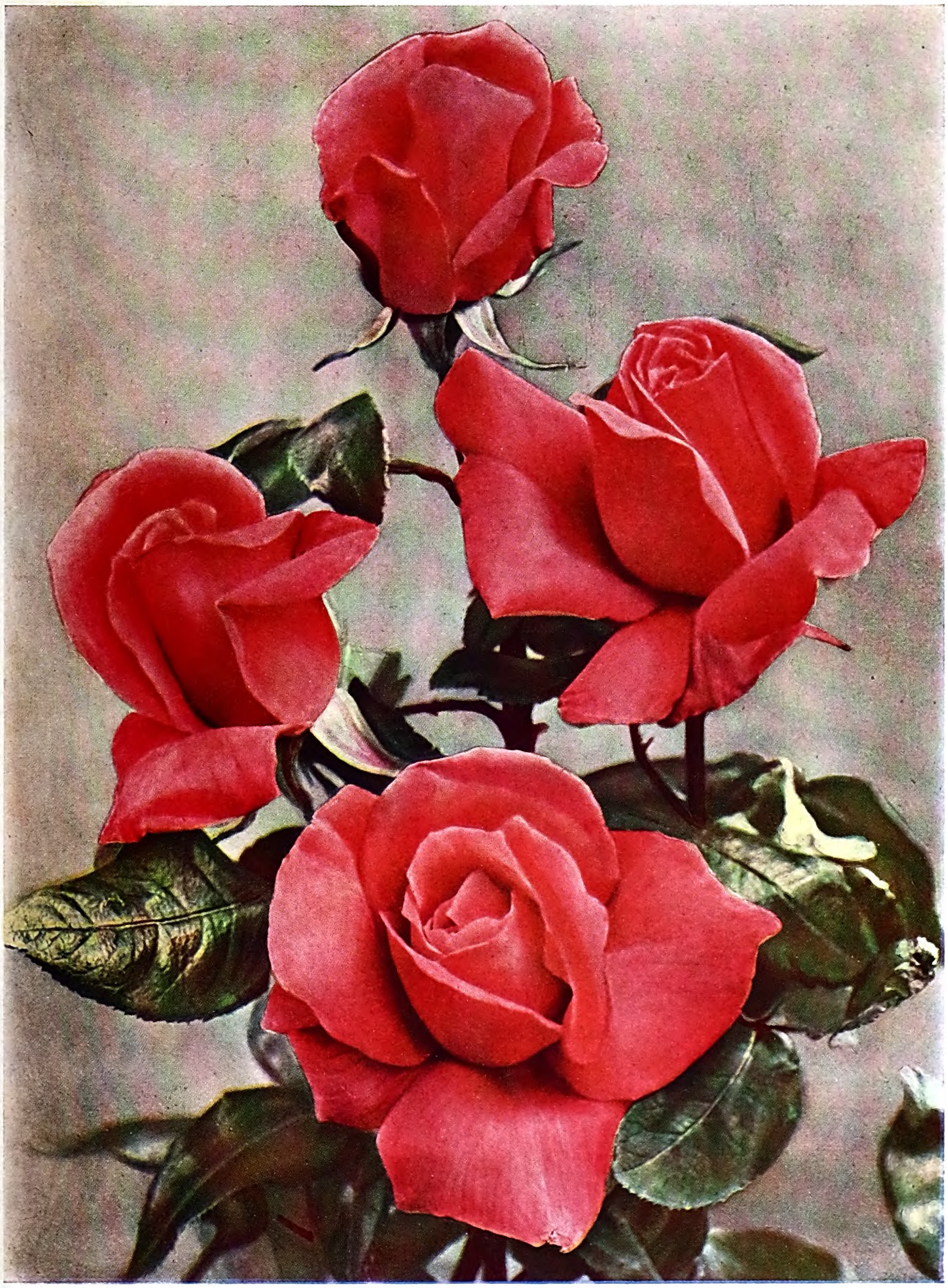
* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27, 1929.



ROSE FLAMINGO.

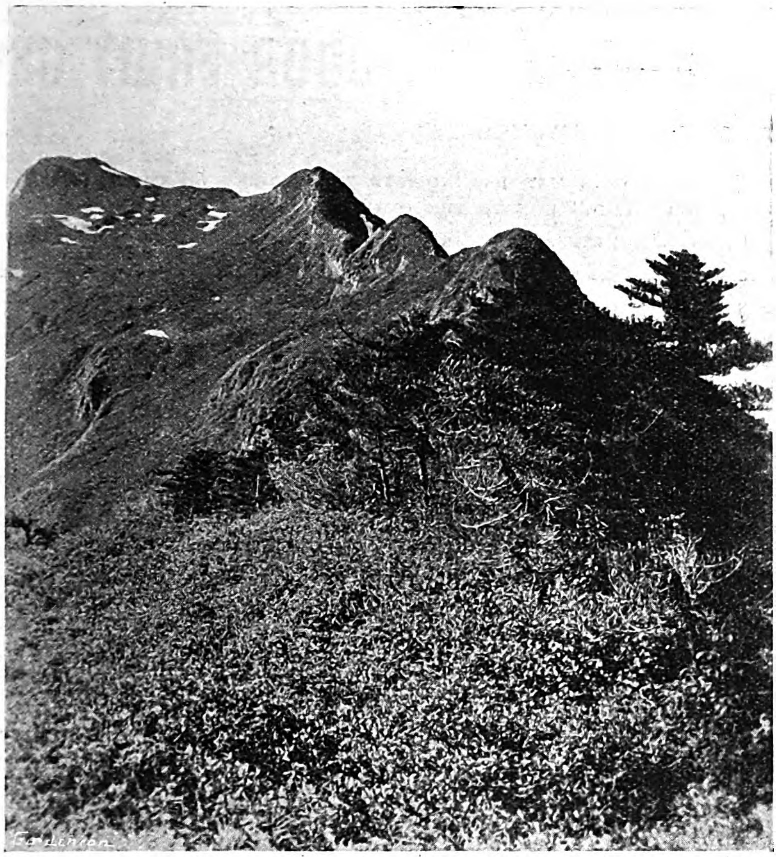


FIG. 56.—KASO RIDGE, WHERE MR. F. KINGDON WARD AT LAST REACHED THE ALPS.

Rhododendron scrub and Abies Webbiana in foreground.

purple 'Saluenense' still smouldered through the smoking mist, and the 'Brachyanthum' was not yet finally extinguished. But by far the most beautiful of all, even with the dew of death on its brow, was 'Rose of Kaso'; except that its flowers are shell-pink, in habit and foliage it matches the superb 'Carmelita' (Tibet, 1924). I shall have more to say about these creeping and crouching 'Sanguineums' later.

As for Primulas, the blue 'Muscarioid' was common on the precipitous turf slopes which it shared with the dwarf Iris; P. calthifolia, now a big, leafy herb, was still in bloom, its pallid, candle-light yellow almost extinguished in the golden blaze of the Gamboge Primula whose ground it shared in part; and the lighter yellow 'Nivalis' which cropped up here and there among hassocks of Rhododendrons, was practically finished. I almost despaired of finding a Meconopsis, but at last I spied a solitary, prickly Poppy in bud, no doubt M. impedita, although I never saw another one, and cannot confirm this. The very next day, however, I discovered none other than M. paniculata, a species not hitherto known to occur outside Sikkim or Nepal. There was no mistaking the four-petalled, sulphur-yellow flowers arranged in axillary cymes all up the four-foot leafy stem, rising like Aphrodite from its sea-green ring of foliage, or the orange anthers, and latex; it might conceivably be a variety, or a local form, but it was M. paniculata at heart, right enough. I could hardly have been more pleased with this discovery had it been an entirely new species.

On the whole, then, our bag was not as good as we had expected, or at least hoped for, and there is little else to record, except a Caltha with purple or, as some might say, magenta flowers, a purple-flowered Morina, a Cremanthodium, a Gentian, a few dwarf Cruciferae, Diplarche multiflora and a few other species common to all the mountain ranges in this part of Asia. As remarked elsewhere, most of the ground was covered with a dense scrub or carpet of Rhododendron, and where that failed, it was either bare rock or still under snow; but, although the variety of alpines was not great, certain species, such as the 'Narcissiflora' Anemone, yellow Lloydia, red Nomocharis, and Gamboge Primula, occurred in incredible numbers. August would, no doubt, bring forth a new crop altogether.

Apart from botanical excursions, our four days and nights were passed chaotically huddled in the tiny tent, amid wet plants and paper, cooking frugal meals of soup and Rice in a steady downpour over a fire which smoked evilly. On July 5, we got up as usual at dawn, put on our wet clothes—we could get nothing dried, of course—had breakfast, packed up our things, and sat waiting miserably for the coolies. It poured with rain all the time, and at 4 o'clock, no coolies having appeared and our food being finished, we strapped on our rucksacks, and leaving everything on the hill, marched down to camp, where we arrived at 7 o'clock. The coolies, who had come up from the village the same afternoon, daunted by the deluge, stayed at the lower camp instead of coming up to bring us down. We had no bedding, but managed to pass a fairly comfortable night. If possible, July 6 was even worse than the previous day, but the Mishmis went up and brought our loads in.

Two Rhododendrons were now flowering finely in the forest. One, a fragrant, white-flowered bush, was clearly allied to R. crassum; it is the latest of all the forest Rhododendrons. The other, with little, fiery-orange, tubular flowers, almost insignificant were they not borne in such numbers, suggested R. Keysii. The individual flowers are, as hinted above, quite small, and each truss has only about three flowers; but the trusses, instead of being terminal as is usual, are axillary, and the leaves being crowded at the ends of the shoots, the effect is that of a red-hot mass of flowers.

The rain continued, and our supplies being now exhausted after six weeks in this camp, we called up the Mishmis and on July 10 returned to the village below. *F. Kingdon Ward.*

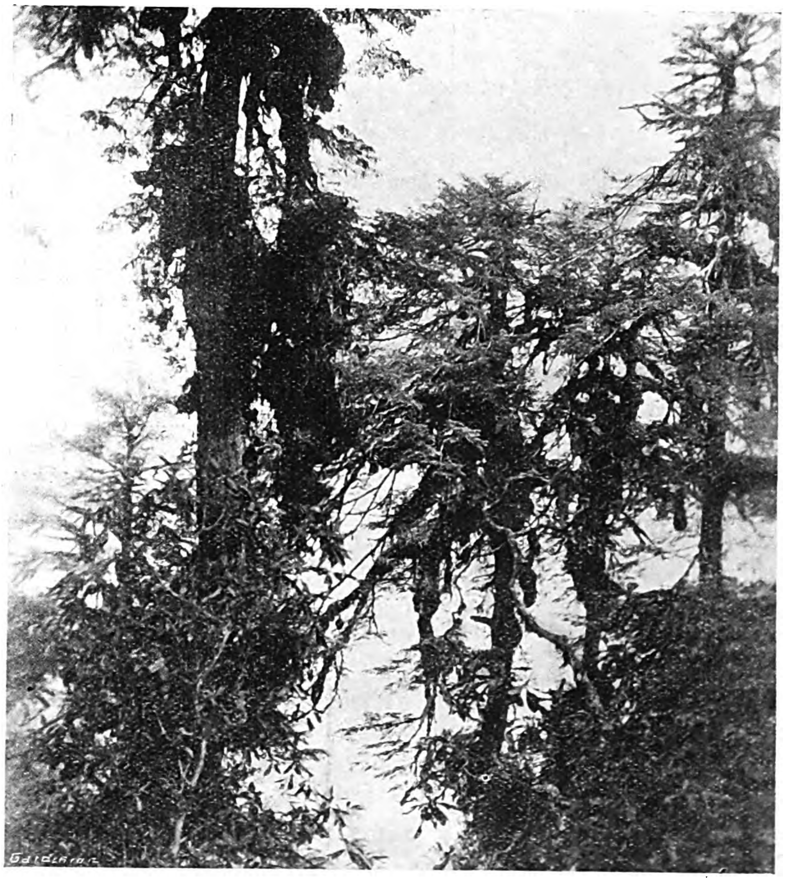


FIG. 57.—TSUGA TREES ENVELOPED IN MOSS.

REPORT ON THE CONDITION OF THE OUT-DOOR FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP; AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

FULLER COMMENTS WILL BE GIVEN IN THE FOLLOWING NUMBERS. SEE ALSO LEADING ARTICLE ON PAGE 101.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND										
Scotland, N.										
MORAYSHIRE	Average	Under	Under	....	....	....	Over; very good	Over; very good	....	James Jamieson, Easter Elchies, Craigellachie.
SUTHERLANDSHIRE ...	Under	Average	Average	Average	....	....	Over	Over	....	W. F. Game, Dunrobin Castle Gardens, Golspie.
Scotland, S.E.										
PEEBLESHIRE	Under; good	Under; bad	Under; good	Under; bad	....	....	Average; good	Over; good	....	John Finnie, Stobo Castle Gardens, Stobo.
ROXBURGHSHIRE	Under; good	Average; very good	Over; good	....	Average good	....	Average; very good	Average; very good	....	Alexander Black, Ancrum House Gardens, Ancrum.
Scotland, E.										
ABERDEENSHIRE	Average; good	....	Average	Under	....	....	Average; good	Over; good	....	Andrew McLeod, Cluny Castle Gardens, Monymusk.
	Average	....	Under	....	....	....	Over; very good	Under	....	Geo. E. Greenhowe, Marischal College, Aberdeen.
	Under; bad	Under; bad	Under	Over	....	....	Over; very good	Over; very good	....	Wm. Smith, Dunecht House Gardens, Dunecht.
BANFFSHIRE	Average; good	Under	Under; good	Under; good	....	....	Over; good	Average; good	....	George Edwards, Ballindalloch Castle Gardens, Banff.
	Average; good	Under	Under	Average; very good	....	....	Over; very good	Average; good	....	Archibald Cathie, Aberlour House Gardens, Aberlour.
FIFESHIRE	Under; good	Under; good	....	Average; good	....	Under	Over; very good	Average; good	....	William Grieve, Balfour House Gardens, Markinch.
	Under; bad	Under; bad	Under	Average	....	....	Average; good	Average; good	....	Patrick Hunt, Falkland Palace Gardens, Falkland.
	Average	Under	Under	Over; good	Average	Under	Average; good	Average; good	....	Charles Simpson, Wemyss Castle Gardens, East Wemyss.
	Under; good	Under	Under	Average; good	....	Under	Average; good	Average; very good	....	D. McLean, Raith Gardens, Kirkcaldy.
FORFARSHIRE	Under	....	Under	Average; good	....	....	Average; very good	Average; very good	....	Donald MacInnes, Glamis Castle Gardens, Glamis.
	Average; good	Under; bad	Average; good	Under; good	Average; good	....	Over; good	Over; good	....	Robert Bell, Kinnaird Castle Gardens, Brechin.
	Average; good	Under; good	Under; good	Average; good	....	....	Over; very good	Average; good	....	David Milne, Baldovan Gardens, by Dundee.
	Under	Under	Under; good	Under	....	....	Average; good	Average	....	J. B. Peffers, Panmure Gardens, Carnoustie.
KINCARDINESHIRE ...	Under	Under	Average	Average	....	....	Average	Over	....	William Thomson, Ury House Gardens, Stonehaven.
MIDLOTHIAN	Average; good	Under	Under; good	Average; good	Average good	Under; good	Average; good	Average; good	....	David Armstrong, The Drum Gardens, Gilmerton.
	Over; good	Average; good	Under	Over	....	....	Average	Over; good	....	William Crighton, Morton Hall Gardens, Liberton.
PERTHSHIRE	Average	Under	Average	Under	....	....	Average; good	Average	....	William Taylor, Meikleour House Gardens, Meikleour.
	Under; good	Under; bad	Under; good	Over; good	Average; good	....	Over; good	Average; very good	....	J. Walpole, Drummond Castle Gardens, Crieff.
	Average	Under	Average	Average	Average	Under	Average	Average	....	J. MacGregor, Rossie Priory Gardens, Inchture.
Scotland, W.										
ARGYLLSHIRE	Under	Under	Average; good	Average; good	Average; good	....	Over; very good	Average; good	....	D. S. Melville, Poltalloch Gardens, Kilmartin.
	Under; bad	Under; bad	Over; good	Average; good	....	....	Average; very good	Over; good	....	E. Ferguson, Appin House Gardens, Appin.
BUTESHIRE	Under; bad	Under; bad	Under; bad	....	Average; good	....	Average; good	Under; bad	....	John J. Davidson, Ardencraig Gardens, Rothesay, Bute.
DUMBARTONSHIRE ...	Average; good	Under; bad	Under; good	....	....	....	Over; good	Over; good	....	F. A. Bush, Arddarrock Gardens, Garelochhead.
	Under	Under	Average	Average	....	....	Average; good	Over; good	....	John Brown, Cairndhu Gardens, Helensburgh.
DUMFRIESSHIRE	Under	Under	Average; good	Average	....	....	Over; good	Average; good	....	James McDonald, Muirhousehead, Lockerbie.

CONDITION OF THE FRUIT CROPS—*(continued)*.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
ENGLAND										
England, N.E.										
DURHAM	Average	....	Average	Average ; good	Under ; bad	....	Over ; very good	....	....	J. A. Woods, Beamish Park Gardens, Beamish, S.O.
	Average	Under	Under	Average ; good	....	....	Over ; good	Average ; bad	....	J. H. Yarrow, Wynyard Park Gardens, Stockton.
NORTHUMBERLAND	Over ; very good	Under	Average ; good	Over ; very good	Under	Under	Average ; good	....	....	James Hay, Alnwick Castle Gardens, Alnwick.
	Average ; good	Average ; bad	Average ; good	....	....	....	Average ; good	Average ; bad	Average ; bad	J. Winder, Howden Dene Gardens, Corbridge-on-Tyne.
	Average	Under	Under	Average	Average	....	Over	Over	....	W. J. Stables, Nether Warden Gardens, Hexham-on-Tyne.
YORKSHIRE	Average	Under	Under	Over	....	Over	Over	Average	....	J. H. Thistlethwaite, Aske Gardens, Richmond.
	Under ; good	Under ; bad	Over ; very good	Over ; very good	Average ; very good	Over	Over ; very good	Over ; very good	....	J. Turton, Sowerby House Gardens, Bridlington.
	Average ; good	Under ; good	Under	....	....	....	Over ; good	....	....	W. H Bolton, Ash Grove, Beverley Road, Hull.
	Under ; good	Under	Under	Average ; good	Average ; good	....	Average ; very good	Average ; good	Average ; good	James S. Coates, Dalton Hall Gardens, Beverley.
	Under ; good	Average ; good	Under ; good	Average ; good	....	Over ; good	Under ; good	Under ; bad	....	James E. Hathaway, Baldersby Park Gardens, Thirsk.
	Average ; good	Under	Average ; good	Under	....	....	Over very good	Over ; good	....	J. G. Wilson, New Millerdam, Wakefield.
England, N.W.										
LANCASHIRE	Average	Under	....	Over	Over	....	Over	....	....	W. B. Upjohn, Worsley Hall Gardens, Manchester.
England, E.										
ESSEX	Under	Under	Under	Over ; good	Over ; good	Average ; good	Over ; good	Average ; bad	Average	Arthur Bullock, Copped Hall Gardens, Epping.
	Average ; good	Under ; good	Average ; good	Average	Over ; very good	Average ; good	Over ; very good	Average ; good	Average	Charles A. Heath, Morley's, Great Hallingbury, Bishop's Stortford.
	Under ; good	Average	Average ; good	Average ; good	Average ; good	....	Over ; good	Over ; bad	Average	John Dewhurst, Gilston Park Gardens, Harlow.
	Under ; good	Under ; good	Under ; good	Under ; good	Average ; good	Average ; good	Average ; good	Under ; bad	Under ; bad	Charles Wakely, East Anglian Institute of Agriculture, Chelmsford.
	Under ; bad	Over ; very good	Average ; good	Under ; bad	Over ; very good	Average ; good	Over ; very good	Over ; very good	....	Thomas W. Mead, Hylands Park Gardens, nr. Chelmsford.
HUNTINGDONSHIRE	Under ; bad	Under ; bad	Under ; bad	Under ; good	Under	Under ; bad	Average ; good	Under ; bad	Under	A. E. Bass, Newtown, Kimbolton.
	Average ; good	Under ; bad	Under ; good	Under ; good	Under ; good	Under	Average ; good	Under ; bad	Under	Guy S. Aubertin, Conington Castle Gardens, Peterborough.
LINCOLNSHIRE	Average ; good	Average ; good	Under ; bad	Under ; bad	Average ; good	....	Under ; bad	Under ; bad	Average ; good	Alexander M. Warnes, Highfield House Gardens, Gainsborough.
	Average	Average	Under	Average	....	Under	Average ; good	Average ; good	....	Thomas Cox, Hainton Hall Gardens, Lincoln.
	Average	Under	Under	Average	Average	Average	Average ; good	Under ; good	Under	F. J. Foster, Grimsthorpe Castle Gardens, Bourne.
	Under ; good	Under ; good	Under ; bad	Average ; good	Average ; good	....	Average ; very good	Under ; good	....	A. E. Jackson, Normanby Park Gardens, Scunthorpe.
	Under	Under	Under	Average	Average	Under	Average	Under	....	J. F. Vinden, Harlaxton Manor Gardens, Grantham.
	Average ; very good	Average ; very good	Under	Average	Average	Under	Over ; good	Average ; very good	Average ; good	A. Neal, Casewick Hall Gardens, Stamford.
NORFOLK	Average ; good	Average ; good	Average ; good	Under	Under	....	Average ; good	Average	Average	Isaiah Johnson, Catton House Gardens, Catton, Norwich.
	Average ; good	....	Average ; good	....	....	....	Under ; good	Under ; good	Average ; good	T. R. C. Blofield, Hoveton Fruit Farm, Wroxham.
SUFFOLK	Under ; good	Average ; good	Average ; good	Over ; good	Average ; good	Average ; good	Average ; very good	Average ; very good	Average ; good	A. K. Turner, Orwell Park Gardens, Nacton, Ipswich.
	Under	Under	Under	Average	....	....	Average	Under	Over	E. G. Creek, County Horticultural Institute, Abbey Ruins House, Bury St. Edmunds.
	Under ; good	Under ; good	Average ; good	Average	Average ; good	....	Average ; good	Under ; bad	Average ; good	A. E. Sales, Flixton Hall Gardens, Bungay.
Midland Counties.										
BEDFORDSHIRE	Average	Average	Average	Under	Average	Under	Over	Under	Under	W. G. Warner, Chicksands Priory Gardens, Shefford.
	Under ; good	Under	Under	Average	Under	Average	Under	Under ; bad	....	Frank J. Clark, Woburn Abbey Gardens, Bletchley.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
BUCKINGHAMSHIRE ...	Under ; bad	Under ; bad	Under ; bad	Average ; bad	Average ; good	....	Average ; good	Under ; good	Average ; good	William Brooks, Missenden Abbey Gardens, Great Missenden.
	Average ; good	Average ; good	Under ; good	Average ; good	Over ; good	Over ; good	Average ; good	Over ; very good	....	George H. Emmett, Taplow Court Gardens, Taplow.
	Under	Over ; good	Average	Under	Over ; very good	....	Over ; very good	Over ; very good	....	William A. Bright, Hughenden Manor Gardens, High Wycombe.
	Average ; good	Under ; bad	Average ; good	Average ; good	Average ; good	Average ; very good	Average ; good	Average ; good	....	James Glasheen, Cliveden Gardens, Taplow.
	Under ; good	Average ; good	Under ; good	Under ; good	....	....	Average ; good	Average ; good	....	G. F. Johnson, Waddesdon Gardens, Aylesbury.
	Average good	Average ; good	Under ; bad	Over ; very good	Over ; good	Average ; good	Average ; good	Average ; good	Under	F. Reid, Dropmore Gardens, Burnham.
	Under	Under	Average ; bad	Average ; good	....	....	Average ; good	Average ; good	Under	William Turnham, Greenlands Gardens, Henley-on-Thames.
CHESHIRE	Average ; good	Under ; good	Under ; good	Average ; good	Over ; good	Over ; good	Over ; good	Average ; good	....	T. A. Summerfield, Alderley Park Gardens, Chelford.
	Average ; good	Average ; good	Under ; bad	Average ; good	....	....	Over ; very good	Average ; very good	Under ; bad	James R. Allan, Tirley Garth Gardens, Tarporley.
	Over ; good	Under ; good	Under ; bad	Under ; bad	Average	....	Over ; very good	....	....	H. J. Thomas, Birtles Hall Gardens, Chelford.
	Average ; good	Average ; good	Under	Average	....	Average	Over ; very good	Average ; good	....	N. F. Barnes, Eaton Gardens, Chester.
DERBYSHIRE	Average	Under	Under	Over	....	Over	Average	Average	Under	William Parks, Whittington Hall Gardens, Chesterfield.
	Average ; good	Average ; good	Under ; good	Average ; good	....	Average	Average ; good	Under ; good	....	John Maxfield, Darley Abbey Gardens, Derby.
	Under	Under	Under	Average ; good	....	....	Average ; good	Under ; good	....	J. Tully, Osmaston Manor Gardens, Ashbourne.
	Over ; very good	Under ; good	Under ; good	Over ; very good	....	....	Over ; very good	Average ; good	Average ; good	George H. Lightfoot, Smalley Hall Gardens, Smalley.
HERTFORDSHIRE	Under ; bad	Average ; good	Under	Under	Average ; good	....	Average ; good	Average ; good	Average	William James Penton, The Node Gardens, Welwyn.
	Average ; good	Average ; good	Under ; bad	Under ; bad	Average ; good	Average ; good	Average ; very good	Average ; good	....	William Stephenson, Hyde Hall Gardens, Sawbridgeworth.
	Under ; good	Average ; good	Under ; bad	Average ; good	....	....	Average ; good	Average ; very good	Under ; good	Thomas Spooner, Whitcroft, Meldreth, Royston.
	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	....	Average ; very good	Over ; good	....	T. Pateman, Brocket Hall Gardens, Hatfield.
	Average ; good	Average	Under	Average	Average	Under	Over	Under	Average	Richard Staward, Ware Park Gardens, Ware.
	Under ; good	Under ; good	Under ; good	Average ; good	....	....	Average ; good	Under ; good	Average ; good	E. F Hazelton, Laurel House, Cravells Road, Harpenden.
	Under ; bad	Under ; good	Under	Under	Under ; good	Under	Average	Under ; bad	Average	George H. Hill, Caldecote House Gardens, Bushey Heath, nr. Watford.
	Average ; good	Under ; good	Under ; good	Average ; good	Average ; good	Over ; good	Average ; good	Average ; good	Over ; good	Edwin Beckett, Aldenham House Gardens, Elstree.
LEICESTERSHIRE	Under ; good	Under ; very good	Under ; good	Under ; bad	Average ; good	Under ; good	Average ; very good	Average ; very good	Under	A. H. Campin, Whetstone Pastures Gardens, nr. Leicester.
	Average ; very good	Over ; very good	Under ; good	Over ; good	Average ; very good	....	Over ; very good	Under ; good	....	M. L. Garrett, Misterton Hall Gardens, Lutterworth.
	Average ; very good	Average ; good	Under ; good	Average ; good	Over ; very good	Average ; good	Average ; good	Under ; bad	....	David Thompson, Whatton Gardens, nr. Loughborough.
	Under	Under	Under	Average	Average	Under	Average	Average	....	F. Ibbotson, Rolleston Hall Gardens, Billesdon, Leicester.
NORTHAMPTONSHIRE	Under ; bad	Average ; good	Under ; good	Average ; good	....	....	Over ; good	Over ; good	Under ; good	Alfred Child, Catesby House Gardens, nr. Daventry.
	Under ; good	Average ; good	Under ; bad	Average ; good	Over ; very good	Under ; bad	Average ; very good	Average ; good	Under ; bad	Frank William Gallop, Lilford Gardens, Barnwell, Peterborough.
	Under ; bad	Under ; good	Under ; bad	Under ; bad	Under ; bad	Average ; good	Average ; good	Under ; bad	Under ; bad	Arthur R. Searle, Castle Ashby Gardens, Northampton.
NOTTINGHAMSHIRE	Under ; bad	Under ; good	Under	Over ; good	Over ; good	Under	Average	Under ; bad	Under	S. Barker, Clumber Gardens, Worksop.
	Under ; good	Under ; good	Under ; good	Under ; bad	Under	Under	Average ; very good	Under ; good	Over ; good	W. R. Scott, Bunny Park Gardens, Bunny.
OXFORDSHIRE	Under ; good	Under ; bad	Average ; bad	Under ; very good	Average ; very good	Average ; good	Over ; good	Under ; bad	....	Samuel Heaton, 38, Botley Road, Oxford.
	Under ; good	Under ; good	Under ; good	Average ; good	Over ; very good	Over ; good	Average ; good	Average ; very good	....	T. W. Whiting, Shotover Park Gardens, Wheatley.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
OXFORDSHIRE............	Under; bad	Average	Under	Under	Average	Average	Average; good	Under	Under	Ben. Campbell, Cornbury Park Gardens, Charlbury.
	Average	Average	Under	Under	Under	....	Average	Under; bad	....	B. Elkington, Cotefield Gardens, Banbury.
	Under; good	Average; good	Average; good	Average; good	Over; good	....	Over; very good	Average; good	....	Victor R. S. Gammon, Eynsham Hall Gardens, Witney.
STAFFORDSHIRE	Under; good	Average; good	Average; good	Average; good	....	....	Average; good	Average; good	....	J. W. Miskin, Woodseat Gardens, Rocester.
	Average; good	Average; good	Under; good	Average; good	....	Under; bad	Average; good	Under; bad	Under; bad	E. Bannerman, Blithfield Gardens, Admaston.
	Average; good	Under; bad	....	Under; bad	....	....	Average; very good	Under; good	....	W. R. Phillips, Tittensoe Chase Gardens, Stoke-on-Trent.
	Average	Under	Under	Over; good	Under; bad	Under; bad	Over; good	Over; good	Under; bad	Edwin Thomas Gilman, Hillside, Rugeley.
	Under; bad	Under; bad	Under	Average; good	Average; good	....	Under; good	Average; good	Under	T. G. Cheney, Shenstone Moss Gardens, nr. Lichfield.
WARWICKSHIRE	Under; good	Under; good	Over; very good	Average; good	....	Under; good	Average; very good	Under; very good	....	W. Auton, Moreton Hall Gardens, Moreton Morrell.
	Under; very good	Average; good	Under; good	Under; good	Average; good	Under; good	Over; good	Under; good	Under; good	H. Dunkin, 86, Emscote Road, Warwick.
	Under; good	Average; good	Under; bad	Under; bad	Over; very good	Under; bad	Under; good	Average; good	Under; bad	A. E. Moss, Billesley Manor Gardens, Alcester.
	Under; good	Under; good	Under; bad	Average; good	Average; good	Under; good	Over; good	Under; bad	....	H. F. Smale, Warwick Castle Gardens, Warwick.
	Under; good	Under; good	Under; good	Average; very good	Over; very good	....	Over; very good	Under; bad	Under; bad	J. S. Buckby, Bilton Grange Gardens, Rugby.
England, S.										
BERKSHIRE	Under; bad	Over; good	Over; very good	Over; very good	Average; good	....	Over; very good	Over; very good	Average; good	Stanley R. Gammon, Farley Court Gardens, Farley Hill, Reading.
	Under; good	Average; good	Under; bad	Average; good	Average; good	Under; good	Average; good	Over; good	....	A. B. Wadds, Englefield Gardens, Reading.
	Average; good	Average; good	Under; good	Average; good	Average; good	Average; good	Average good	Under; bad	Under; good	Geoffrey Cooper, Ranworth, Malvern Road, Furze Platt, Maidenhead.
	Average	Under	Average	Under	Average	Under	Under	Under; bad	Under	Thomas Wilson, Castle Gardens, Wallingford.
	Under	Under	Under	Average	Under	Under	Average	Average	....	Frederick Gooch, Earlywood Gardens, Ascot.
DORSETSHIRE	Under; good	Average; very good	Under; good	Average; very good	Over; very good	Under; good	Average; good	Average; very good	Average; good	Henry F. Maidment, N.D.H., Crichel Gardens, Wimborne.
	Average; good	Average; good	Under; bad	Average	Average; good	....	Average; good	Average	Over; good	Thomas A. Sparrow, Ilsington Gardens, Piddletown, Dorchester.
	Under; bad	Under; bad	Average; good	Average; good	Average; good	....	Average; good	Under; good	Average; good	W. E. Axford, St. Giles Gardens, Salisbury.
HAMPSHIRE	Under; good	Under; good	Under; good	Average; good	Over; good	....	Average; very good	Under	Average	George Ellwood, Swanmore Park Gardens, Swanmore.
	Over; very good	Average; good	Under; bad	Average; good	Under good	....	Average; very good	Average; good	Under; good	George Summersell, Buriton House Gardens, Petersfield.
	Average; good	Over; good	Average; good	Average; good	Over; very good	Average; good	Over; very good	Under; bad	Average	A. J. Legge, Dogmersfield Park Gardens, Winchfield.
	Under; good	Average; good	Under; good	Under; bad	Over; very good	....	Over; very good	Average; good	Under	J. A. Rogers, Hackwood Park Gardens, Basingstoke.
	Average; good	Average; good	Average; good	Under; good	Average; good	Average; very good	Average; good	Under; bad	....	W. G. Osborne, Sutton Manor Gardens, Sutton Scotney.
KENT..........................	Over	Under	Under	Average	Average	....	Average	Under	Average	J. George Woodward, Barham Court, Teston, Maidstone.
	Average	Over; good	Under; good	Average; very good	Over; very good	Under; bad	Under; bad	Average; good	Under	T. Cain, The Cottage, Dashwood, Gravesend.
	Average; good	Average; good	Under; bad	Over; good	Average; good	....	Average; good	Under; bad	Average; good	G. R. Pierce, Huntleys Gardens, Tunbridge Wells.
	Average	Under	Under	Under	....	....	Over; good	....	Average; good	G. Lockyer, Rose Mount Gardens, Mereworth.
	Under	Average	Average	Average; good	Over	....	Average; good	Average; good	Average	E. Stubbs, Knole, Sevenoaks.
	Average; good	Average; good	Average; good	Under	....	Average; good	Over; very good	Under; bad	Average	Henry Brotherston, Lympne Castle Gardens, Hythe.
	Average; good	Average; good	Under	Average; good	Over; good	....	Over; good	Under; bad	Average	John Bone, Olantigh Gardens, Wye.
	Under; good	Average; good	Under	Average; good	Over; good	....	Average; good	Under; bad	Over; good	H. E. Kemp, Holmewood Gardens, Langton, Tunbridge Wells.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
KENT	Average ; good	Average ; good	Over ; good	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	Over ; good	N. B. Bagenal, Pilgrim House, Trottiscliffe, nr. West Malling.
	Under ; good	Average ; good	Under ; good	Under ; good	Over ; very good	Over ; good	Average ; very good	Average ; good	Under ; good	John W. Dickinson, St. Paul's Cray Hill Park, St. Mary Cray.
	Average good	Average ; good	Under ; good	Over ; good	....	....	Average ; good	Under ; bad	Over ; good	R. G. Hatton, Research Station, East Malling.
MIDDLESEX	Average	Under	Under	Average	Over ; good	....	Average	Average ; good	Average ; good	H. Markham, Wrotham Park Gardens, Barnet.
	Under ; good	Under	Under	Average	....	....	Average ; good	Under ; bad	....	George H. Head, Fulwell Park Gardens, Twickenham.
SURREY	Over ; good	Under ; good	Under	Under	Average ; good	Under	Average ; good	Under ; bad	Average	Grigor Roy, Bevenden Gardens, Oxshott.
	Under ; good	Over ; very good	Under ; good	Average ; good	Over ; very good	Average ; good	Average ; good	Average ; good	Under	F. Jordan, Ford Manor Gardens, Lingfield.
	Under ; bad	Average ; good	Under ; bad	Average ; good	Average ; good	....	Average	Over ; good	Under	G. Carpenter, West Hall Gardens, Byfleet.
	Under ; very good	Average ; very good	Under ; good	Under ; good	Under ; good	Under ; bad	Over ; very good	Over ; very good	Average ; good	John H. Shipley, Haling Park Gardens, South Croydon.
	Average ; very good	Average ; good	Under	Average ; good	....	Under	Over ; very good	Average ; good	Average ; good	William Everatt, Burford Gardens, Dorking.
	Under ; good	Under ; bad	Under ; bad	....	....	....	Average ; very good	Average ; very good	....	James A. Paice, Copseham, Esher.
	Average ; good	Over ; good	Under ; good	Over ; very good	Over ; good	Under	Over ; very good	Under	....	O. Maddock, Ham House Gardens, Richmond.
	Under ; good	Under ; good	Under	Average	Average ; good	Under	Over ; very good	Average ; good	Average	Stephen E. Harling, Holmdale Gardens, Holmbury St. Mary, nr. Dorking.
	Average ; very good	Average ; good	Under ; good	Average ; good	Average ; very good	Average ; good	Under ; good	Average ; good	Under	Alan N. Rawes, R.H.S. Gardens, Wisley, Ripley.
	Under ; bad	Under	Under	Under	Over ; very good	Average	Average	Average	Average ; good	N. Fullegar, Eastbury Manor Gardens, Compton, nr. Guildford.
	Under ; good	Under ; good	Under ; good	....	....	....	Average ; good	Average ; good	....	G. E. Twinn, Polesden Lacey Gardens, Dorking.
	Under ; bad	Under ; bad	Under ; bad	Under ; bad	....	....	Average ; good	Under ; bad	Under ; good	Charles Marchment, Winterfold House Gardens, Cranleigh.
SUSSEX	Average	Average ; good	Average	Over ; good	Over ; good	Over ; good	Average ; good	Average	Over ; good	F. Streeter, Petworth Park Gardens, Petworth.
	Over ; very good	Under ; good	Under ; good	Under ; good	....	....	Average ; good	Under ; good	Average	E. M. Bear, Magham Down, Hailsham.
	Average	Average	Under	Average	Over	Average	Average ; good	Average ; good	Average	Arthur Wilson, Eridge Castle Gardens, Tunbridge Wells.
	Under	Over	Under	....	Average	....	Average	Under	Over	E. Markham, Gravetye Manor Gardens, East Grinstead.
	Under	Under	Under ; good	Average ; good	Over ; very good	....	Average ; good	Under	....	W. H. Smith, West Dean Gardens, Chichester.
	Over ; good	Over ; good	Average ; good	Over ; good	Average ; good	....	Average ; good	Average ; good	Average ; good	Edwin Neal, Tilgate Gardens, Crawley.
	Under ; good	Average ; good	Average ; good	Over ; good	Over ; good	Over ; good	Over ; good	Average ; good	Over ; good	T. E. Tomalin, Stansted Park Gardens, Emsworth.
	Average	Over ; good	Average	Average	Over ; very good	....	Over ; very good	Over ; very good	....	J. J. Thompson, Compton Place Gardens, Eastbourne.
WILTSHIRE	Under ; good	Average ; good	Average ; very good	Over ; very good	Over ; very good	Under ; bad	Over ; very good	Average ; very good	Average ; bad	S. W. Tucker, Longford Castle Gardens, nr. Salisbury.
	Average ; good	Under ; good	Under ; good	Average ; good	Average ; very good	....	Over ; good	Over ; very good	Under ; good	A. L. Lyddiatt, Greenhill Gardens, Sutton-Veny, Warminster.
	Under ; good	Over ; very good	Under ; good	Under ; bad	Over ; very good	Under	Average ; good	Over ; good	Over ; good	H. H. Mills, Fonthill House Gardens, Tisbury.
England, N.W.										
WESTMORELAND	Average	Under	Under	Average ; good	Average ; good	....	Average ; good	Average	....	James Jeffrey, Lowther Gardens, Penrith.
England, S.W.										
CORNWALL	Average ; good	Over ; very good	Average ; good	Over ; good	Over ; very good	Average ; good	Over ; good	Under ; good	....	Harry Williams, Tolvean Gardens, Redruth.
DEVONSHIRE	Average ; good	Average ; good	Average ; good	Over ; good	Over ; good	Under	Over ; good	Under ; good	Under ; good	E. E. Bristow, Castle Hill Gardens, Barnstaple.

CONDITION OF THE FRUIT CROPS—*(continued).*

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
DEVONSHIRE	Under ; bad	Over ; good	Average ; good	Under ; bad	Over ; good	....	Average ; good	Under ; bad	....	T. H. Bolton, Hartland Abbey Gardens, Hartland.
	Average ; good	Over ; good	Under	Under	Over ; good	Over ; good	Over ; good	Over ; very good	....	Robert Veitch & Son, Ltd., The Royal Nurseries, Exeter.
	Average ; very good	Over ; very good	Under ; good	Under ; bad	....	....	Over ; very good	....	....	Charles L. Mackintosh, Seale-Hayne Agricultural College, Newton Abbot.
SOMERSETSHIRE	Under ; good	Average ; good	Under	Over ; good	Over ; very good	Over ; good	Average ; very good	Average ; good	Over	J. Yandell, Halswell Park Gardens, Bridgwater.
GLOUCESTERSHIRE ...	Under ; good	Under	Under	....	....	....	Over ; good	Under	....	J. G. Maynard, Research Station, Long Ashton, Bristol.
	Under ; good	Under ; good	Under ; good	Average ; good	Over ; very good	Average ; good	Average ; good	Under	....	W. J. Mitchell, The Arboretum, Westonbirt, Tetbury.
	Under ; good	Under ; good	Average ; very good	Average ; good	Average ; bad	Over ; good	Over ; very good	Under ; bad	Average ; good	Edwin Roper Tuck, Ellerncroft Gardens, Wotton-under-Edge.
	Average ; very good	Average ; very good	Under ; good	....	Average ; good	....	Over ; very good	Average ; very good	....	John Ettle, 201, Henleaze Road, Westbury-on-Trym.
	Over ; good	Average ; good	Average ; good	Average ; good	Over ; good	Under	Average ; good	Average ; good	....	S. W. Dance, Williamstrip Gardens, Coln St. Aldwyns, Cirencester.
	Under	Over ; good	Under ; good	Average ; good	Over ; good	....	Over ; good	Under	Under	John Banting, Tortworth Gardens, Falfield.
	Average	Average	Under	Average	Average	Average	Over	Under	....	Edward A. Jefferies, Royal Nurseries, Cirencester.
	Under ; good	Average ; good	Under ; good	Under ; good	Average ; good	Average ; good	Average	Under ; good	....	G. H. Hollingworth, Shire Hall, Gloucester.
HEREFORDSHIRE	Average	Under	Under	Average	Over	Under	Average	Under	Average	J. B. Cooke, Ledbury Park Gardens, Ledbury.
	Average	Under ; bad	Average	Over ; very good	Average	Under ; bad	Over ; very good	Average	Average	F. Roberts, Stoke Edith Park Gardens, Hereford.
SHROPSHIRE	Average ; good	Average ; good	Under	Over ; good	....	Average ; very good	Over ; very good	Under ; good	Under	Roger F. Jones, Otcley Hall Gardens, Ellesmere.
	Under ; good	Under ; good	Under ; good	Average ; very good	Over ; good	Average ; good	Over ; good	Under ; good	....	J. Clark, Sansaw Gardens, Clive, Shrewsbury.
WORCESTERSHIRE	Under ; good	Average ; very good	Average ; good	Average ; good	Over ; very good	Average ; very good	Over ; very good	Under ; good	Under	Henry Thomas Cheeseman, Strensham Court Gardens, nr. Worcester.
	Average ; good	Under ; good	Under ; good	Over ; good	Average ; good	Average ; good	Average ; good	Under ; bad	Under ; bad	William Crump, V.M.H., Oakridge, Richmond Road, Malvern Link.
	Under	Under	Under ; bad	....	....	....	Over ; good	Under	Under	Ernest Avery, Finstall Park Gardens, Bromsgrove.
WALES										
CARDIGANSHIRE	Average ; good	Over ; very good	Over ; very good	Average ; good	Over ; very good	....	Average ; good	Over ; very good	....	W. Phillips, Derry Ormond Gardens, Llangbi.
CARMARTHENSHIRE ..	Under ; good	Over ; very good	Over ; very good	Under ; bad	Over ; good	....	Over ; very good	....	....	William Robinson, The Gardens, Golden Grove, R.S.O.
CARNARVONSHIRE ...	Average ; good	Average ; good	Over ; good	Average ; good	....	....	Average ; good	Under ; bad	....	J. S. Higgins, Glynllivon Gardens, Llanwnda.
DENBIGHSHIRE	Under ; very good	Under ; very good	Average ; very good	Average ; very good	Over ; very good	Under	Over ; very good	Average ; very good	Average	R. H. Crockford, Horsley Hall Gardens, Gresford, W. Wrexham.
	Under ; good	Under ; good	Average ; good	Average ; very good	Over ; very good	Average ; good	Over ; very good	Under ; bad	Under	S. J. Robbins, Cafn Park Gardens, Wrexham.
	Average	Average	Under	Average	....	Average	Average	Average ; good	Average	J. A. Jones, Chirk Castle Gardens, Chirk, Wrexham.
	Under	Under	Average	Average	Average	....	Average	Average ; good	....	F. C. Puddle, Bodnant Gardens, Tal-y-Cafn.
FLINTSHIRE	Over ; very good	Under	Average ; good	Under ; good	Over ; very good	....	Under ; good	Under ; good	Average ; good	Harry L. Jones, N.D.H., Padeswood Hall Horticultural Centre, nr. Mold.
	Over ; very good	Under	Under	Average ; good	Over ; good	Average	Over ; very good	Average ; good	Average	J. L. Eversfield, Penbedw Hall Gardens, Nannerch.
GLAMORGANSHIRE	Average ; good	Average ; good	Over ; very good	Average ; bad	Average ; good	....	Over ; very good	Average ; good	....	W. E. Wright, Tregarth Gardens, Creigiau, nr. Cardiff.
	Under ; good	Over ; very good	Under ; good	....	Over ; very good	....	Over ; very good	Over ; very good	....	Robert Carter, Miskin Manor Gardens, Pontyclun.
MONTGOMERYSHIRE ..	Under ; good	Under ; good	Average	Average	Average	Under	Over ; good	Average ; good	....	William Durrant, Brookland Hall Gardens, Welshpool.

CONDITION OF THE FRUIT CROPS—(*continued.*)

COUNTY.	APPLES	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
IRELAND										
Ireland, N.										
TYRONE	Under	Under	Under	Under	....	....	Over; good	Over	....	Fred. W. Walker, Sion House Gardens, Sion Mills.
ANTRIM	Over; good	Average; good	Average; good	....	Average; very good	....	Under; bad	Over; very good	....	R. McMurray, Dundarave Gardens, Bushmills.
Ireland, S.										
CORK	Average; good	Average; good	Average; good	....	....	....	Over; good	Average; good	....	J. Dearnaley, 17, St. Patrick's Terrace, Magazine Road, Cork.
KILDARE	Average	Average	Under	Average	Under	Under	Over	Under	Under	Alexander Black, Carton, Maynooth.
KILKENNY	Average; very good	Average; very good	Under	Average	....	....	Over; good	Over; good	....	Henry Hall, Shanhill Castle Gardens, Whitehall.
	Under; good	Average; good	Average; good	Over; good	Over; good	Under; good	Over; good	Average; very good	Average; good	T. E. Tomalin, Bessborough Gardens, Piltown.
CHANNEL ISLANDS										
GUERNSEY	Over; good	Average; good	Average; good	Average; good	Average; good	....	Average; good	Average; good	....	C. Smith & Son, Caledonia Nursery, Guernsey.
JERSEY	Over; good	Under; bad	Average; good	Average; bad	Over; good	....	Average; good	Average; good	....	G. Harper, Springfield Nursery, Jersey.
ISLE OF MAN										
CASTLETOWN	Average	Under	Under	Average	....	....	Over; very good	Under; bad	....	Frank Large, Great Meadow Gardens, Castletown.
DOUGLAS	Under	Under	Under	....	....	....	Average; good	Under; bad	....	James Inglis, Peel Road Nursery, Douglas.

SUMMARIES OF THE HARDY FRUIT CROPS.

SCOTLAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	29	26	28	24	8	5	29	29	—
Average	12	3	9	14	8	—	16	16	—
Over	1	—	2	4	—	—	13	11	—
Under	16	23	17	6	—	5	—	2	—

ENGLAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	148	148	146	139	112	81	150	143	92
Average	64	60	37	74	52	32	84	58	41
Over	9	17	4	26	46	13	57	18	12
Under	75	71	105	39	14	36	9	67	39

WALES.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	12	12	12	11	10	5	12	11	5
Average	4	3	5	9	3	3	4	6	4
Over	2	3	4	—	7	—	7	2	—
Under	6	6	3	2	—	2	1	3	1

IRELAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	6	6	6	4	3	2	6	6	2
Average	3	5	3	2	1	—	—	2	1
Over	1	—	—	1	1	—	5	3	—
Under	2	1	3	1	1	2	1	1	1

CHANNEL ISLANDS.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	2	2	2	2	2	—	2	2	—
Average	—	1	2	2	1	—	2	2	—
Over	2	—	—	—	1	—	—	—	—
Under	—	1	—	—	—	—	—	—	—

ISLE OF MAN.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	2	2	2	1	—	—	2	2	—
Average	1	—	—	1	—	—	1	—	—
Over	—	—	—	—	—	—	1	—	—
Under	1	2	2	—	—	—	—	2	—

GRAND SUMMARY, 1929.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	201	196	198	183	136	95	201	193	99
Average	86	73	56	104	66	36	107	84	46
Over	15	20	10	31	55	14	83	34	12
Under	100	103	132	48	15	45	11	75	41

SUMMARY OF 1928 FOR COMPARISON.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records ..	216	214	213	203	146	101	214	212	95
Average	119	100	73	97	70	20	107	103	23
Over	40	20	29	26	6	1	91	29	—
Under	57	94	111	80	70	80	16	80	72

FRUIT REGISTER.

PEAR CLAPP'S FAVOURITE.

Clapp's Favourite is quite a useful Pear for the latter part of August—there are not many to choose from—being of good texture and flavour when at its best. But to get it in that condition it needs watching almost as closely as a Williams's Bon Chrêtien. It is a robust, upright grower, and its handsome fruits will often average fully half-a-pound in weight. It thrives equally well in any form or on either stock.

This Pear has a short season, and it is better to gather the fruits a little too early than wait until they begin to change colour, by which time their best quality is already over. In any case, the fruits keep only a few days.

It is not so early coming into bearing as some, and is only a moderate cropper with me, and although such an early-fruiting variety, it is one of the last to come into flower. Its scarlet-striped fruits and large, shining foliage make it one of the most decorative varieties as a specimen bush near the lawn. This Pear was raised in Massachusetts and named after the raiser.

PEAR DOYENNÉ D'ETÉ.

This is almost the first of the hard fruits to mature, being ready by the end of July in some seasons, and lasting in various soils and positions until the end of August or even later.

It has the smallest fruits of any good Pear, and these often hang on the branches as thickly as Gooseberries, but it needs a suitable variety near it for cross-pollenation to induce such fertility. The most fertile tree I ever had was a standard with the old Bergamot Pear worked on the top. It makes a good tree in any form and on either stock, but one does not want a standard of an early variety. The fruits should be picked before they begin to turn yellowish-green, as they become mealy if allowed to hang too long; they are best eaten straight from the tree; they are very juicy and sweet at their best, with a very distinct and peculiar flavour.

The season of this Pear may be extended to nearly a month by making the first picking from the sunny side of the tree rather early, even before the fruits have reached their full size. Pear Doyenné d'Eté is one of the earliest to come into flower and the blossom is not too hardy. It is a very old variety and is stated to have originated with the Capuchin monks, a couple of centuries ago.

APPLE JAMES GRIEVE.

This handsome Apple has achieved popularity very quickly, and this is not to be wondered at for it is a good and early bearer of fruits of excellent quality, and makes a handsome upright bush with large and rather shining leaves. The fruits seem almost better, both in appearance and quality, in a cool or damp summer than in a hot or dry one, perhaps because Scotland is its native country.

It is of quite common occurrence to see fruits in the market early in September, but for private purposes they are better left on the tree until the middle of the month at least, gathering the most mature fruits as required from then until the end of the month. Some consider the fruits are better eaten straight from the tree, but although they may lose in harshness and sharpness of flavour—a recommendation to some—they gain in richness of flavour by being kept a few days.

Complaints have been made of the fruits rotting while on the tree and of premature falling, but this is apparently a matter of exceptional soil or climate.

Like some other early varieties of Apple it is one of the latest coming into flower. It has a tendency to form fruit buds at the tips of the shorter growths of the current season, which must be borne in mind when pruning. Well-grown fruits of this Apple should average four to the pound. *A. Petts.*

HOME CORRESPONDENCE.

Geranium Pylzowianum.—Mr. Arnott's note (p. 47) on Geranium Pylzowianum has interested me. G. Pylzowianum, as I have always known it, fits the description given both by Mr. Arnott and Farrer, the flowers being much nearer a soft, clear rose than magenta. The ground colour of those of G. lancastriense at its best very nearly matches it in tint. But some time ago a correspondent sent me a plant which, while its running, mat-forming habit of growth and general appearance suggest G. Pylzowianum, it departs very widely from that species in other peculiarities. That is to say, its tallest leaves rise to a height of ten or twelve inches, and they are a very full-toned, mottled, cucumber-green, the tips of the lobes being bronzed and the stalks a rich, deep crimson. The flowers, which appeared in June, were somewhat larger than those of G. Pylzowianum, and they were a very dark crimson-purple. I would not call them magenta (even the " morning after "), but they were almost the exact colour of those of that form of G. argenteum which is many shades more intensely crimson-purple than the type. Can any reader enlighten me as to what this is ? *A. T. J.*

Cyclamens in a Cottage Window—I am sending you a photograph of two Cyclamens (Fig. 51, p. 105), grown by a cottager near here, in his little cottage window. These Cyclamens have been in the same pots (seven-inch) for five years without any repotting. The corms are almost as large as the pots. The plants are kept in the window until the foliage has died down, and then the pots are laid on their sides in an out-house, to be brought back to the window again when growth recommences. I was invited to go and see these plants some time ago, and found one had seventy blooms and numerous buds, and one had sixty blooms and lots of buds. I thought this note might be of interest to my fellow craftsmen. *E. Snelgrove, The Gardens, Roundway Park, Devizes.*

FOREIGN CORRESPONDENCE.

ASTRAGALUS SINICUS.

The note by Mr. T. Hay, in your issue of May 4 (p. 327), on the genus Astragalus (A. utahensis) interested me much. A Chinese species called A. sinicus, which is widely cultivated and naturalised in Japan is, I believe, worthy to be included among " desirable species." It is of prostrate habit, with odd, pinnate leaves, with usually from seven to nine green, obovate leaflets. The flower stems are four to six inches tall, each bearing an umbel of five to eight flowers of rose-purple shade. As a Japanese proverb says, " Don't take Rengeso (the Japanese Milk Vetch) in your hand; but leave her as she is in the field " ; this most floriferous Leguminous plant is extremely beautiful when carpeted or massed in the field. The Japanese call it Genge, or Rengeso, and it is one of our most familiar plants in spring. It is extensively cultivated as a fodder plant or for green manure in Japan, and also in the United States and other countries for the same purposes, but is not so well known in the horticultural world. There are meritorious agricultural and horticultural varieties. One of the former attains the height of nine feet, while one of the latter only attains a few inches. By spreading Leguminous bacteria on the soil when the seeds are sown, the crop is increased considerably. This method is practised, and pure cultures of bacteria are sold in Japan. Taking back the soil where A. sinicus had been grown, to their own country, before the great war, from Japan, some Germans succeeded in growing Astragalus sinicus perfectly. In this way some Japanese alpine Leguminous plants, which I heard complained of while I was in England, might be grown successfully.

If Mr. C. T. Musgrave and Mr. T. Hay care to have the seeds and bacteria or soil, I will be only too glad to send some. Just now, the beginning of June, the plant has finished its long flowering period. *K. Yashiroda, Japan.*

SOCIETIES.

NEWCASTLE HORTICULTURAL.

The annual excursion of the Newcastle-on-Tyne Horticultural Society took place on Saturday, July 27, when the famous gardens of J. C. Straker, Esq., were visited by one hundred-and-five members.

The party was met by Mr. Alex. Hay, gardener, and conducted through the fruit houses, where Grapes, Peaches, Figs and Melons of the highest quality were seen. The terrace garden is a feature of the place and here the Delphiniums, climbing Roses and other plants were splendid.

The pot Chrysanthemums were carefully examined by the enthusiasts as Mr. Hay hopes to retain the Henderson Cup won by him at the Newcastle Chrysanthemum Show last November.

An extensive wild garden where Primulas were seen in their thousands was next visited ; the rock garden was full of interesting plants, and the time was all too short to see everything.

Vegetables and outdoor fruits were of show quality, and the bed of Onions was admired quite as much as the house of well-grown Carnations. Over two hours were spent in strolling around the grounds before the party proceeded to Hexham. Mr. G. W. Patterson, Secretary, and Mr. John Dick, Chairman, who had charge of the arrangements, asked Mr. A. Hay to thank Mr. and Mrs. J. C. Straker for their kindness in opening their wonderful gardens to the members of the Society. Tea was served at Hexham, and then two hours were spent exploring the Abbey grounds and viewing the old-fashioned buildings and gardens. It was a record outing, and it is a good indication of the interest taken in the Society that no fewer than 105 members took advantage of the kind offer to visit Stagshaw Gardens.

GUILDFORD GARDENERS'.

A very enjoyable outing by members of this Association took place in mid-July, when a visit was paid to Sir Richard Garton's gardens, at Lythe Hill, Haslemere.

As the name suggests, Lythe Hill is situated in the hilly district of Surrey, and is just on the borders of Sussex, adjacent to Blackdown, made famous as the last home of Tennyson. The spacious mansion is of the Victorian period, built of red brick in striking contrast to the green verdure of summer all around. It is erected on the site of an older house, one wall of which, with a fine fresco of a tithe—or rent, collecting scene—still remains.

The mansion is situated on the escarpment of the hill commanding a delightful and extensive view across the Weald, embracing part of Surrey and part of Sussex. Far away are the North Downs, with Leith Hill above Dorking on the horizon, and richly timbered undulations between wherein are Hiscomb Hill and Highdon Boll—both famous beauty spots, and in this situation of many natural charms the beauties of nature have been supplemented by the art of man and the place made still more beautiful.

Across the lawn in front of the house is a grassy declivity known as the American garden, where Rhododendrons in some 360 varieties flower in season, together with many shrubs such as Kalmia latifolia; Deodora Cedars, and Cypress, tall green columns eighty feet high, also flourish here amid massed beds of Ericas. Near the house is a small rock garden around a Lily pool, beyond which is a cluster of Hydrangeas with blue flowers growing naturally. Near at hand is a small glade, in perfect contour, where is Lawsonia erecta var. viridis, and where a solitary crane resents the intrusion of strangers. The background is of Cypresses, Palms and shrubs. From the glade the ground drops sharply for some three hundred yards, and on this slope a new rock garden has just been made. Upwards of five hundred tons of stone have been brought from Cheddar and placed in position so as to appear like a natural formation. The rock garden broadens and deepens as it descends and is split up into a number of channels down which water falls and gathers into a pool at the bottom. The water is first pumped from a spring about a mile away and has to be raised 250 feet. Passing from the top to the bottom, it was observed that already many plants have found a congenial home. Funkia Sieboldii was in bloom by the water's edge, and Foxgloves in variety were flowering higher up the banks; Crinodendron Hookeri, with charming, rose-coloured, pendant blooms, was noted, also Mimulus Brilliant, Astilbe Ceres, Astilbe Betsy Cuperus, Astilbe Thunbergii var. Moeheimi, Primula Bulleyana, Meconopsis cambrica var. flore pleno, and many Irises in various colours. Planting is still going on, but it must be some time before the work is completed, and longer still for the full beauty to mature.

On the hillside, as a setting to this wonderful rock garden, are numbers of Oaks, Spruce, Cypress and other trees indigenous to a woodland dell; but the most striking is the grouping of several clumps of slender Beech trees, five or six in a group, that tower tall and straight like the clustered columns in a vast cathedral. In other parts of the garden are herbaceous borders, spacious and well-kept; Rose pergolas, resplendent with well-known ramblers at their best, and immense rows of Sweet Peas which of themselves added glory to the garden.

In the glasshouses were well-grown specimens of Trachelium coeruleum, double Petunias, Gloxinias, Streptocarpus, Begonias, Crassulas, Coleus, Celosias and a particularly attractive plant in Amaranthus tricolor. Grapes and Tomatos are also grown in perfection and abundance.

The kitchen garden was in keeping with all the rest, but apart from a very fine crop of Boskoop Giant, among the Black Currants, space does not admit of a detailed account.

The whole establishment testifies to a garden-lover as its owner, and reflects great credit upon the gardener, Mr. E. S. Hayes, and his staff.

Sir Richard Garton kindly provided tea for the visitors at the Swan Hotel, Haslemere.

PAPWORTH AND EVERARD HORTICULTURAL.

Friends of Mr. H. G. Shaw, late of Bryn Lupus, Llandudno, and now gardener to A. J. Thornhill, Esq., Diddington Hall, Buckden, Huntingdonshire, will be interested to hear of his recent successes at the above show.

He was awarded the Dr. Varrier-Jones Silver Challenge Cup for the best display of flowers in the show; this display covered an area of fifteen feet by five feet by five feet, and was composed entirely of Sweet Peas in eighteen distinct varieties. The quality of the seven exhibits in this class was extremely good, but Mr. Shaw's Sweet Peas were of outstanding merit.

Mr. Shaw also won three first and one second prizes at the above show, and also had the honour of being presented with the Challenge Cup by H.R.H. The Duchess of York, who highly complimented him on his great achievement.

On the following day at Huntingdon, Mr. Shaw was again a very successful exhibitor of Sweet Peas.

FALKIRK AND DISTRICT ROSE.

The Annual Show of Roses, Sweet Peas, Carnations and Violas, under the auspices of this Society, which was held in the Town Hall on July 27, proved to be the most successful in its history. So numerous and extensive were the exhibits that space had to be provided in the entrance hall for the Pansy and Viola classes. Competition generally was keen and in all sections the quality of the blooms was above the average standard.

In the open section for Roses, Messrs. D. and W. Croll, Dundee, staged the best collection of cut blooms arranged in a six-foot space, in which the prominent varieties were Betty Uprichard, Lady Inchiquin, Mrs. Henry Morse, Lady Roundway, Ivy May and Etoile de Holland. The class for six baskets was well filled, and the highest honours were awarded to Mr. R. C. Ferguson, Dunfermline, whose specimens of Mrs. C. Lamplough, Dr. A. Carnegie, Mabel Morse, Mrs. George Marriott and Frau Karl Druschki were outstanding. Messrs. D. and W. Croll were second with younger and lighter blooms, and the third prize went to Messrs. Thomas Smith and Son. So far as size and quality were concerned, there were no Roses in the show to compare to the first prize lot of twenty-four blooms in eighteen varieties exhibited by Messrs. Adam and Craigmile, Aberdeen. In a uniformly good collection, Dr. Deacon, Anne, Margaret McGredy and Dr. I. Petyt stood out prominently, while the bloom of Mrs. Henry Morse was chosen as the best Rose in the show. The Aberdeen firm also excelled with twelve blooms of H.T.'s.

In the class for twelve crimson Roses, Messrs. Smith and Messrs. Austin and McAslan, Glasgow, were placed first and second, respectively, with well-grown blooms of John Russell, while in the class for twelve blooms, of white or cream varieties, all the competitors with one exception exhibited Mrs. Charles Lamplough; the prize-winners were: First, Messrs. D. and W. Croll; second, Mr. A. Taylor, Larbert; and third, Messrs. Smith and Son.

The exhibits in the gardeners' and amateurs' section testified to good cultivation, and here the principal prize-winners were Mr. F. Wheeler, Tayport; Mr. James Boyd, Falkirk; Mr. D. Montgomery, Bainsford; and Mr. J. Braithwate, Linlithgow.

Messrs. Torrance and Hopkins, Busby, were successful in the class for eighteen vases and six vases of Sweet Peas; while Mr. J. R. Paterson, Alloa, who scored in the class for twelve vases, also secured the special award for the best vase in the show, with Royal Pink.

The honours in the Pansy and Viola competition were shared by Mr. Hugh McCall Linlithgow, and Mr. Henry Robertson, Kelty; while the first prize awards in the Carnation classes were secured by Messrs. Torrance and Hopkins, Mr. James Smith, Darvel, and Mr. J. McFarlane, Airdrie.

Messrs. Dobbie and Co. exhibited a large collection of Roses, representing popular varieties, while Messrs. Austin and McAslan featured newer varieties and novelties.

ANSWERS TO CORRESPONDENTS.

Broad Beans Unhealthy.—*W. F. A.* The Broad Bean plants were found to be free from pathogenic organisms. There was some sign of root damage by either wireworms or millipedes. The plants appeared to be suffering from "blindness," the contributory causes of which are many. Information regarding the state of the plants should be communicated to the seedsman from whom the seeds were purchased.

Cyclamens Starved.—*C. A.* The Cyclamens plant shows no sign of having been attacked by either insects or fungi. The symptoms are those of starvation. The soil submitted for examination is deficient in nitrates and phosphates. Repot the plants in a richer compost, using fresh loam.

Grapes Shanked and Scalded.—*F. C.* If all your Grapes are as badly affected as those sent for inspection, no treatment of any kind will save the crop this year. The Grapes are suffering from shanking, scalding and from a very bad attack of mildew, caused by imperfect ventilation, while other daily details regarding watering and damping have been neglected. It is impossible to secure good Grapes by attending to the vines one day and leaving them to themselves the next. See reply to *A. L. B.*, in *The Gardeners' Chronicle* of July 20.

Intermediate Stocks.—*C. B.* You have sought advice much too late regarding Intermediate Stocks to flower during the months of December and January. To flower them at the period named the seeds should have been sown in April. By sowing the seeds now you could obtain good flowering plants by the end of March. The seeds should be sown in light, open soil and germinated in a cool greenhouse, so soon as the seedlings can be handled they should be pricked off into small pots and grown under cool conditions, finally potting them into forty-eight-sized pots, when this is necessary. Any ordinary potting soil is suitable, provided plenty of lime-rubble is used. It is practically impossible to flower Sweet Peas and Calendulas at the season named, as being hardy they will not withstand forcing. However, seeds may be sown in the autumn and the plants grown under cool conditions to produce flowers during early spring.

Melons Failing.—*E. A. A.* The two Melons were so badly smashed when received that we can only surmise what may be the cause of your trouble. The Melon is one of the easiest of all fruits to grow, up to a certain point; the critical time comes when the fruits being to ripen, as then, unless the cultivation has been correct, the plants and fruits collapse. The chief causes of failure are over-watering with cold water, over feeding at too late a stage in an endeavour to enlarge the size of the fruits, and allowing the bottom-heat to fall too low at the finish. Bottom-heat should always be brisk and steady especially near the finishing period, and tepid water only in reduced quantities should be used.

Names of Plants.—*J. P. O'D.* 1, Eryngium alpinum; 2, Lomaria magellanica; 3, Lastrea felix mas grandiceps.—*E. A. H. K.* Sparaxis tricolor.

Pear Growths Diseased.—*W. F.* The Pear shoots have been heavily infested with green-fly, Aphis pomi. It is too late to remedy the matter now, but the affected tree should be sprayed thoroughly in January with an approved tar-distillate spray at seven per cent. If some of the eggs are missed during winter spraying, the aphides will be detected on the young shoots in May, when they should be forcibly sprayed with a nicotine-soap wash.

Poplar Leaves Spotted.—*A. and M.* The Poplar (?) leaves are attacked by a Septoria leaf-spot fungus. Collect and burn all fallen leaves and spray the trees, if this is practicable, in May, with Bordeaux mixture.

Sweet Peas with "Streak."—*A. R.* The Sweet Pea plants are attacked by the bacterium, Bacillus lathyri, commonly known as "streak" disease, which is induced by an excess of nitrogenous manures. Water the plants at weekly intervals with sulphate of potash (one ounce to five gallons of water) using one pint to each plant until the new growth is observed to grow away clean. The disease may be spread by the pruning knife, so it is wise to wipe the knife, after cutting infected plants, on a rag soaked in two per cent. Lysol.

Tomatos Falling.—*T. O.* It is somewhat difficult to give a reason for Tomatos falling before reaching maturity. In the first place you state you have a good crop of fruits, but no mention is made of the health of the plants. We note you have planted 700 plants in a house eighty-six feet by thirty-nine feet. This, in our estimation, is rather overcrowding, and the trouble may be partly due to this and to insufficient moisture at the roots. If this is the case the foliage would fall an easy prey to mildew, which would cause the fruits to fall before they are fully matured. The trouble may, of course, be due to faulty root action caused through some check in the early stages of growth. We have known Tomatos cast their fruits when potash has been used in excess.

Communications Received.—W. A.—E. H. T.—T. P.—W. G.—P. G.—A. F. L.—G. F. W.—F. J.—J. F.—A. C. B.—D. M.—H. G. M.

THE Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 61·3°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, August 14, 10 a.m. (Greenwich time). Bar. 30·2. Temp. 68°. Weather, fine.

The Drought.

THE drought which recent rains have mitigated, if not ended, has played strange pranks in the garden and country. Thanks to it, large tracts of the countryside have appeared seared and brown twice within six months: first, as the result of the severe winter, and now in consequence of the not less severe drought. So also in the gardens, the shortage of water has revealed to those who take all good things for granted, that the glory of the garden abideth not in words . . . but in lawns. Robbed of their setting of verdure all manner of beautiful garden things have failed to exercise their full powers of seduction, and the whole garden has put on its end-of-the-season Augustine look long before August was come. Lucky in such a season are those who possess supplies of water from rivers or deep wells in sufficient abundance to admit of all the watering being done that the garden needs. Lucky, certainly, but unless laid out on irrigation lines, what a labour! How to satisfy an earth so thirsty, when sandy soil behaves like a sieve and clays expose gaping cracks down which the water would pour uselessly unless the hoe were used first to stop them! The drought has been so capricious in its incidence that generalities are more than ordinarily dangerous. As an example of that caprice there was the storm of rain in June soon after Ascot, which bestowed three inches of water on the Maidenhead district and left Oxford without a drop. Again, in Yorkshire, anyone who motors northward through the county will find the grass land south of Scarborough all burned up and brown, whereas northward, albeit that the farmers are no less clamant of the sorrows of the drought, the fields are still green, although, of course, very short of grass. Yet, in spite of the all but complete absence of rain which has afflicted some districts throughout the present year, the gardens, even in these districts, have withstood the scarcity remarkably well. There was, perhaps, never a season when plants have flowered more freely. Exceptions there have been, of course, but writing generally, it has been, and still is, a wonderful year for blossom. Those who rely on bedding out have, of course, suffered severely, unless watering has been possible. Tall varieties of Antirrhinums bedded out in late spring look as though they were Tom Thumb varieties—so dwarf are they. Nor is that the only effect of water shortage upon them, for in despite of their minute size they are full of flower buds and must be pinched back if they are to make good specimens when rain releases them from the arrest of drought. Yet more pathetic than the bedded out plants are the wall plants. In normal seasons the gardener who has dry walls can produce effects which those who garden in flat places may admire but cannot emulate; but in dry seasons, even although the hose be plied with assiduity, the plants suffer terribly. To see a Sempervivum wilt is indeed a rare sight, yet common enough this year. Worse even than the present damage to plants grown in wall and rock gardens where water is not available, is the prospective damage due to the failure of supplies of plants for future years; for the first garden precept of the rock or wall gardener is that which used to be always on the lips of the late Reverend H. J. Bidder, of St. John's College, Oxford. Towering above the novice, he was wont to say: "If you would succeed as a rock gardener, learn and master the art of propagating plants." This year, with growth arrested, save where water has been plentiful, the normal time for that work is passing, and there is nothing to propagate. How wise, judged by this event, is the gardener who keeps a large reserve of rock and alpine plants in the propagating yard which, composed of narrow, sandy beds, should be attached to every garden. These beds at least can be kept watered and they will supply generously cuttings and layers and divisions to make good the inevitable losses of this memorably dry year. Needless to say, in this reserve garden, besides the sandy beds, there should be a goodly supply of cloches and frames. The former will have proved invaluable in this sunny year; for, as is well known, cuttings rooted in sandy soil, soaked and kept soaked, covered with a cloche and exposed to full sunshine, root in half the time taken by cuttings planted in the open. So much remains to write about the effects of the unprecedented drought that we propose to discuss the matter again; in the meantime, we can but hope that any advice which it may be possible to give will not come too late to be of useful application in the present year.

Mr. Kingdon Ward's Plant Collections.—Under the title of *Field Notes of Rhododendrons and Other Plants collected by Kingdon Ward in* 1927-28 Mr. Lionel de Rothschild has prepared a very interesting and descriptive list of discoveries made by this well-known traveller, chiefly in the Delei Valley in those years. No fewer than ninety-four Rhododendrons, many of them as yet unnamed, are listed in the nicely-bound little book which will form a useful companion to *Rhododendrons, their Names and Addresses*, compiled by E. H. Wilding in 1923. In addition to the Rhododendrons there is a list of Trees, Shrubs and Herbs collected during the same period. These make a total of ninety-seven and include several Primulas, Nomocharis, Violas, Roses and Gaultherias. Several blank pages are left for notes but we think that those who raised specimens of Mr. Kingdon Ward's discoveries would prefer to see this little book interleaved throughout.

Rural Water Supply.—The Minister of Agriculture and Fisheries announces that the Government has decided to make grants on the basis of thirty-three-and-one-third per cent. of the cost, to be increased to fifty per cent. if transferred labour is employed, in respect of approved schemes for water supply in rural areas serving groups of holdings. The dry weather during the past six months has emphasised the difficulties in regard to water supply in many parts of the countryside, and there is good reason to believe that rural water supply schemes could be carried out with great advantage to agriculture and to the improvement of the conditions of rural workers, at the same time contributing towards the relief of unemployment. Full details of the conditions governing these grants and those for field drainage, which were announced last week, will be published at a later date.

Richmond Allotments. — The Richmond (Surrey) Corporation is experiencing some difficulty in letting its allotments. In the Manor Road Allotments there are sixty-three vacant plots out of a total of one-hundred-and-seventy-three. There is a loss in rental of £161, and also the expense, estimated at £45, of keeping the vacant plots clear of weeds. Potential allotment holders in Richmond have insisted for some time that the rent of 52s. per ten-rod plot asked by the Town Council is too high, and now the Allotments Committee has been authorised to consider the whole question of allotment rents and report to the Council.

National Diploma in Horticulture and Teachers' Advanced Examination.—The Royal Horticultural Society's National Diploma in Horticulture has been awarded to the following, as a result of the written and practical examinations for the Diploma held this season:—Section 1 (General Horticulture): Mr. William George Fry, 111, Beverstone Road, Thornton Heath; Mr. Wilfred Charles Ibbett, 15, Burstow Road, Wimbledon, S.W.19; and Miss Florence Record, 9, Silverdale Road, Woodhey, Rock Ferry, Cheshire. Section 2 (Hardy Fruit Growing for Market): Mr. Robert John Garner, 3, Chapel Street, East Malling, Kent; and Mr. Robert Hart, Gorseland, Danbury, Essex. Section 5 (Landscape Gardening): Mr. Frederick Charles S. Robinson, 38, Broadway, Codsall, near Wolverhampton. The following have passed the Preliminary Diploma Examination and will be eligible to take the Final Examination after they have completed six years of practical experience in gardening:—Mr. Frederick Alexander Bush, Arddarroch Gardens, Garelochhead, Dumbartonshire; Mr. Leonard Frederick Clift, St. Patrick's Hall, Reading; Mr. Percy Cross, John Innes Horticultural Institution, Merton, S.W.; Mr. William Alfred Dove, R.H.S. Gardens, Wisley, Ripley, Surrey; Mr. Raymond John Gutsell, John Innes Horticultural Institution, Merton, S.W.; Mr. Alexander D. Harrison, 123 St. Helen's Road, Swansea; Mr. Leslie Philip Lee, 66, Selwyn Avenue, Kew Road, Richmond, Surrey; Mr. Norman Leech, 11, Royston Terrace, Goldenacre, Edinburgh; Mr. Brian Orson Mulligan, R.H.S. Gardens, Wisley, Ripley, Surrey; Miss Mary Page, 29, Queen Anne Avenue, Bromley, Kent; Mr. Maurice James Peters, R.H.S. Gardens, Wisley, Ripley, Surrey; Miss Lorna C. Style, Studley College, Studley, Warwickshire; and Mr. Ralph Edwin Thoday, St. John's College Gardens, Madingley Road, Cambridge. The Examiners report that many candidates again failed to reach the standard set for these examinations. This is especially true of the work done in the practical part. Too many were content with half-finished work, and more than that is expected of candidates with some years of garden experience behind them; others showed themselves very proficient in certain branches and very far behind in others. In the Preliminary, and in Section 1 of the Final, all-round proficiency in carrying out ordinary gardening operations is looked for, and the Board of Examiners wishes to impress upon candidates the importance of thorough mastery of the commoner and more generally called for operations so that they may perform them with ease and expedition. Merely to know how they should be done is not enough; in these examinations ability to do them counts for much more. They are examinations designed to see who are worthy to receive the highest professional Certificate the Society can bestow, the National Diploma in Horticulture, and the standard expected is naturally a high one. The Society's Certificate for the Teachers' Advanced Examination in School and Cottage Gardening has been awarded to Mr. Eric Clark, 294, Skellingthorpe Road, Lincoln; Mrs. Fearn, Hilltop, Millbrook, Stalybridge, Cheshire; and Mr. James R. McKnight, School House, Ilam, near Ashbourne, Derbyshire. One candidate failed. The Examiners report that the most noticeable feature of the candidates' work was the weakness in both description and performance of the practical soil operations, such as Full Trenching, Bastard Trenching and Ridging. Questions involving knowledge of the principles underlying horticultural practice were well answered, and so also were the compulsory questions of the written examination, although there was weakness shown by the failure of some candidates to prepare a cropping plan.

Campanula pyramidalis at Kew.—An extensive display of the Chimney Campanula in the Temperate House at Kew demonstrates the value of this hardy Bellflower for greenhouse and conservatory decoration. Grouped on either side of the long path right through the centre of the house, the position under the Tree Ferns provides ideal surroundings for displaying the beauty of these Campanulas. In all, there are about one hundred plants, ranging from about four feet to six feet in height, with flowers, mostly of blue shades but with a few examples of the white variety. The plants are rather more than two years' old from seeds, and are growing in nine-inch and ten-inch pots.

R.H.S. Scholarships, 1929.—The General Scholarship of £50 a year for two years, offered by the Worshipful Company of Gardeners, has been awarded to Mr. E. K. Lawrence, c/o R.H.S. Gardens, Wisley, Ripley, Surrey; and the Knott Scholarship of £30 a year for two years has been offered to Mr. John Hardy, Shadingfield, Beccles, Suffolk. These two scholarships are awarded on the results of a special examination designed to test the candidate's ability to profit by a course of instruction in horticulture.

Honour for M.M. Meunissier, Chenault and Petit.—Our friend and correspondent, M. A. Meunissier, of Verrieres-le-Buisson has been promoted Chevalier de la Legion d'Honneur; M. Leon Chenault, formerly of Olivet, near Orleans, who introduced many Asiatic and American plants to French horticulture; and M. A. Petit, Director of the Horticultural Research Laboratory at Versailles Horticultural College, have also been similarly honoured.

Glasgow Gardeners' Outing to Glenapp Castle Gardens.—On Saturday, August 3, a large number of members of the Glasgow and West of Scotland Horticultural Society took advantage of the arrangements made to visit Glenapp Castle Gardens, by the kind permission of Lord and Lady Inchcape. The weather was very unfavourable at the start, but cleared up before mid-day, and the sixty-mile run to Girvan was accomplished in good time. Here lunch was served at the King's Arms Hotel, and the party then proceeded by the rugged shore road to Ballantrae, reaching Glenapp policies about 3 p.m. Mr. Taylor, the gardener, and his staff were in readiness to welcome the visitors, and two pleasant hours were spent in admiring the well-kept gardens, each member finding something of interest among its many and varied features. The rock garden was first visited and its natural features favourably commented on, although at this season much of its glory had departed. In the glasshouses were magnificent crops of various fruits, all in prime condition, in preparation for the shooting season now close at hand, but the feature of the plants under glass was the excellent display of Carnations, from which it seemed difficult for some of the members to part. The flower garden and terraces were gay with all manner of summer-flowering plants. Roses added their beauty and fragrance, and the wild garden, with its waterfalls, was much admired, but while the masses of Primulas were now unfortunately over, they showed by their luxuriant foliage and numerous seed-pods how they revelled under the conditions provided. Above all, the tidiness and well-kept appearance was evidence of the care and energy of Mr. Taylor and his staff. Tea was served in the New Hall at Ballantrae, when Mr. Dagg, Past Chairman of the Directors (in the unavoidable absence of Mr. I. M. Fleming, the present Chairman), expressed the appreciation of the members for the great treat they had enjoyed, and called for a hearty vote of thanks to Lord and Lady Inchcape for so graciously granting permission to visit Glenapp. He also thanked Mr. Taylor for conducting the party, and for his great assistance in making arrangements. Mr. Taylor suitably replied, and the party then returned by way of the Stinchar Valley on the eighty miles run home, which was duly reached about 9.30 p.m. The thanks of the members were also given to Mr. J. Carrick Kerr, Secretary of the Society, for the splendid arrangements which enabled everyone thoroughly to enjoy the day's outing.

MR. SINZAEMON TANAKA.
(see p. 131.)

Legacy to a Gardener.—Mrs. Elizabeth Livingstone McLean, of Burfield Hall, Wymondham, Norfolk, who died on April 4, 1929, left £250 and a further £250 on his leaving her service, to her gardener, Mr. John Watt.

Agricultural Meteorology.—Some impression of the increasing importance of a knowledge of meteorology to horticulturists and agriculturists may be gathered from the fact that there will be an Agricultural Section of the Conference of Empire Meteorology, which is to take place in London, commencing on August 28. The Agricultural Section will meet in the Large Hall at the Civil Service Commission, Burlington Gardens, London, W.1, and will deal with (a) Collection of data for use in agricultural meteorological investigations and the extent to which uniformity is possible; (b) Opportunities for research in agricultural meteorology and methods that can be applied; (c) The use of meteorological data in the improvement of crop estimates and the supply of weather warnings to farmers. The preliminary arrangements for the meetings of the Agricultural Section are as follow:—Wednesday, August 28: Joint Sessions of General Conference and Agricultural Section; Seasonal Forecasting; General Climatology. Thursday, August 29: Morning—Historical Review, Plant Physiology and Meteorology, and Light and Growth; Afternoon—Fruit Production and Meteorology. Friday, August 30,: Morning—Climate and Animal Distribution, Weather and Insects, and Weather and Fungus Diseases of Plants; Afternoon, Use of Meteorological Data in the Improvement of Crop Estimates. Saturday, August 31: Visits to the Lord Wandsworth Agricultural College, Long Sutton; and to the Royal Horticultural Society's Gardens, Wisley, to inspect agricultural meteorological work. Monday, September 2: Visit to Rothamsted Experimental Station to inspect agricultural meteorological work.

Sandy Flower Show.—Although the function is of only one day's duration, the Sandy and District Floral and Horticultural Society invariably manages to arrange a great display on the occasion of its Annual Show. The date this year is Thursday, August 29, and the site, as usual, is Sandye Place, kindly lent by Mrs. Graves. In addition to hundreds of classes for poultry, dogs, rabbits, cats and pigeons, no fewer than two-hundred-and-forty-nine are provided in the horticultural section. The total value of the prizes offered at Sandy Show exceeds £2,000. The bands of the Scots Guards and the Coldstream Guards have been engaged to provide the music at this fifty-sixth annual show at Sandy, Bedfordshire. Entries close on August 19; the secretary is Mr. F. W. Western.

Ministry of Agriculture's Crop Returns.—In accordance with its usual practice, the Ministry of Agriculture has recently issued a report on the acreage of land in England and Wales under the various crops of economic importance, and it is interesting to note the fluctuations in the acreages of some of these crops. The total area under Beans, for instance, is 156,800 acres or 13,200 acres less than in 1928. This decrease, which is general except in Yorkshire and in the South-west, is entirely in Beans for harvesting as corn which are being grown on 143,900 acres, or 13,600 acres (8·6 per cent.) less than in 1928. The acreage of Beans picked green shows an increase of 400 acres, or 3·2 per cent. The total area of Peas in 132,400 acres, an increase of 18,400 acres compared with 1928. Peas for harvesting as corn occupy 78,600 acres, the remaining 53,800 acres being under Peas to be picked green, the increase as compared with 1928 being about 9,000 acres in each case. The area under Potatos is larger than in any year since 1922, the total acreage of 518,900 acres being 30,000 acres, or 6 per cent. higher than in 1928. Increased acreages were returned from the great majority of counties, the heaviest increases being in Lincolnshire, with 9,100 acres, Isle of Ely, with 4,400 acres, and Yorkshire, with 3,800 acres more than in 1928. The net increase in the area under root crops is due to an appreciable addition, amounting to 54,200 acres, in the acreage of Sugar Beet, which is 229,900 acres, or nearly 31 per cent. more than in 1928. This is the highest acreage yet recorded for this crop. The greater part of the increase is shown in the Eastern and North-eastern divisions, but the relatively heaviest increases were in the South-eastern and South-western divisions, which increased their 1928 acreages by over 50 and 100 per cent. respectively. The largest county increases are 12,300 acres in Norfolk; 10,000 acres in Lincolnshire; 8,000 acres in Suffolk; 5,000 acres in the Isle of Ely and 3,000 acres in Essex. Most vegetables are being grown on increased acreages, the most notable exceptions being Brussels Sprouts which show a reduction from 30,400 acres to 26,700 acres, and Celery, which shows a negligible drop from 5,800 acres to 5,700 acres. Cabbages for human consumption are being more widely grown in most counties, and show an increase from 27,900 acres to 32,400 acres. Cauliflowers and Broccoli have increased by 400 acres to 13,900 acres; Carrots by 300 acres to 10,300 acres; Rhubarb by 200 acres to 7,200 acres; and Onions by 700 acres to 2,400 acres, the increase in the acreage of Onions being over 40 per cent. The total acreage of orchard and small fruits remains about unchanged from that of last year, the acreage of orchards being 248,200 acres or 200 acres less, and that of small fruit being 64,900 acres, or 200 acres more than in 1928. The greatest changes in orchard acreages are reductions of 635 acres in Worcester, 307 acres in Hereford, and 329 acres in the Holland division of Lincolnshire. Kent, on the other hand, returned an increase in orchards of 995 acres. Variations in the acreage of the different kinds of small fruits were practically negligible. The Strawberry acreage at 20,400 acres is very slightly less than in 1928. Raspberries occupied 6,000 acres compared with 6,200 acres last year, while Currants and Gooseberries, at 34,800 acres, show a small increase. These crop reports were returned on June 4.

Professional Gardeners' Outings.—Numerous Yorkshire members of the Professional Gardeners' Association visited the Harrogate Public Parks and Gardens on a recent Saturday afternoon when they were the guests of the Corporation's Pleasure Grounds Committee. Under the guidance of Mr. J. E. Besant, the Parks Superintendent, visits were paid to Harlow Hill, the Valley Gardens, the Crescent Gardens and the Royal Hall Gardens. Mr. Besant was congratulated upon the fine displays he had provided and Councillor Pohlmann was thanked for entertaining the party. On July 22, the members paid a vist to the Gardens of Sir W. H. Aykroyd, at Grantley Hall, Ripon, where Mr. Ilott, the gardener acted as guide; the flower garden, Sweet Peas, herbaceous borders, kitchen garden, and glasshouses were inspected critically and greatly admired, while the rock garden, the collection of flowering trees and shrubs, the fine Conifers and the massive Yew hedges were sources of delight and wonder. Thanks were accorded to Sir W. H. Aykroyd and Mr. Ilott for their kindness and for the educational advantages the visit had provided.

Large Specimen of Rhododendron Falconeri.—Mr. Collingwood Ingram writes :—" The enclosed photograph (Fig. 58) taken at Kilmacurragh, Co. Wicklow, shows what is probably the finest specimen of Rhododendron Falconeri in Europe. It stands about twenty-three feet high and is as much, or more, through its broadest diameter. When the photograph was taken, early this summer, it was estimated that the plant carried over four hundred trusses of bloom."

A Plague of Toads.—The residents of Weston Mill, near Plymouth, are suffering a visitation of toads in such numbers as to constitute a serious nuisance. They attribute the undesirable number of toads, which even enter their houses, to a refuse tip which the Corporation has made in the district. It is said that the toads are much more in evidence during the mornings than at other times of the day.

Plum Crops in Worcestershire.—The Ministry of Agriculture and Fisheries has received further reports on the condition of the Plum crops in Worcestershire. The crop of Pershore Plums is stated to show marked variations not only between adjoining plantations but also between individual trees within the plantations, and this fact renders the estimation of the weight of the crop a matter of considerable difficulty. In the Evesham and Pershore district the Pershore Plum crop is reported to be of fair quality; the yield is estimated at approximately two tons per acre, which is considered by the reporters to be a light crop. In the Worcester and Stourport district, Pershore plums are reported to be of fair quality, but the yield is very light and is estimated at only about three-quarters-of-a-ton per acre, although possibly this figure may be exceeded in the area to the west of the Severn. Taking the area as a whole, it is estimated that there is a good average crop of coloured Plums.

Appointments for the Ensuing Week.—Wednesday, August 21: Eastbourne Horticultural Society's Exhibition; Bangor Horticultural Society's Exhibition (two days); Perthshire Exhibition (two days); Shrewsbury Show (two days). Thursday, August 22: Peebleshire Horticultural Society's Exhibition. Friday, August 23: Montrose Horticultural Society's Exhibition (two days). Saturday, August 24: Leeds Paxton Society's visit to Farnley Show.

" Gardeners' Chronicle " Seventy-five Years Ago.—*The Rice-Paper Plant.*—On the morning of April 20 last, the steamer in which I was a passenger dropped her anchor a little way up one of the rivers on the north-east part of Formosa. As this was my first visit to this fine island, and as I knew we had only a short time to stay, I lost no time in going on shore. Before leaving the vessel I had been examining with a spy-glass some large white flowers which grew on the banks and on the hill-sides, and I now went in that direction, in order to ascertain what they were. When I reached the spot where they were growing, they proved to be very fine specimens of Lilium japonicum—the largest and most vigorous I had ever seen. As I was admiring these beautiful Lilies, which were growing as wild as the Primroses in our woods in England, another plant of far more interest caught my eye. This was nothing less than the Rice-paper Plant—the species which produces the far-famed Rice-paper of China, named by Sir W. Hooker Aralia papyrifera. It was growing apparently wild; but the site may have been an old plantation, which was now overgrown with weeds and brushwood. The largest specimens which came under my notice were about five or six feet in height, and from six to eight inches in circumference at the base, but nearly of an equal thickness all up the stem. The stems, usually bare all the way up, were crowned at the top with a number of noble-looking palmate leaves, on long foot-stalks, which gave to the plant a very ornamental appearance. The under side of each leaf, its footstalk, and the top part of the stem, which was clasped by these stalks, was densely covered with down of a rich brown colour, which readily came off upon any substance with which it came in contact. I did not meet with any plant in flower during my rambles, but it is probable the plant flowers at a later period of the year. Numerous small plants were coming through the ground in various directions, which a Chinese soldier carefully dug up for me, and which are now safely deposited in Mr. Beale's garden at Shanghai. These, with a few samples of the largest stems I could find, will be sent to England in the course of a few months; the latter will prove an interesting addition to our museums of vegetable productions. The proportion of pith in these stems is very great, particularly near the top of vigorous growing ones, and it is from this pure white substance that the beautiful article erroneously called " Rice-paper " is prepared. The Chinese call this plant the *Tung-tsaou*. What it was, or to what part of the vegetable kingdom it belonged was long a mystery to botanists, who were oftentimes sadly misled by imaginary Chinese drawings, as some of those which have been published will clearly show, now that our knowledge has increased. Indeed the only drawing I have seen in Europe, which has any claim to be considered authentic, is that brought from China by Mr. Reeves many years ago, and which I have seen in the library of the Horticultural Society of London. *Robert Fortune. Gard. Chron., August* 19, 1854.

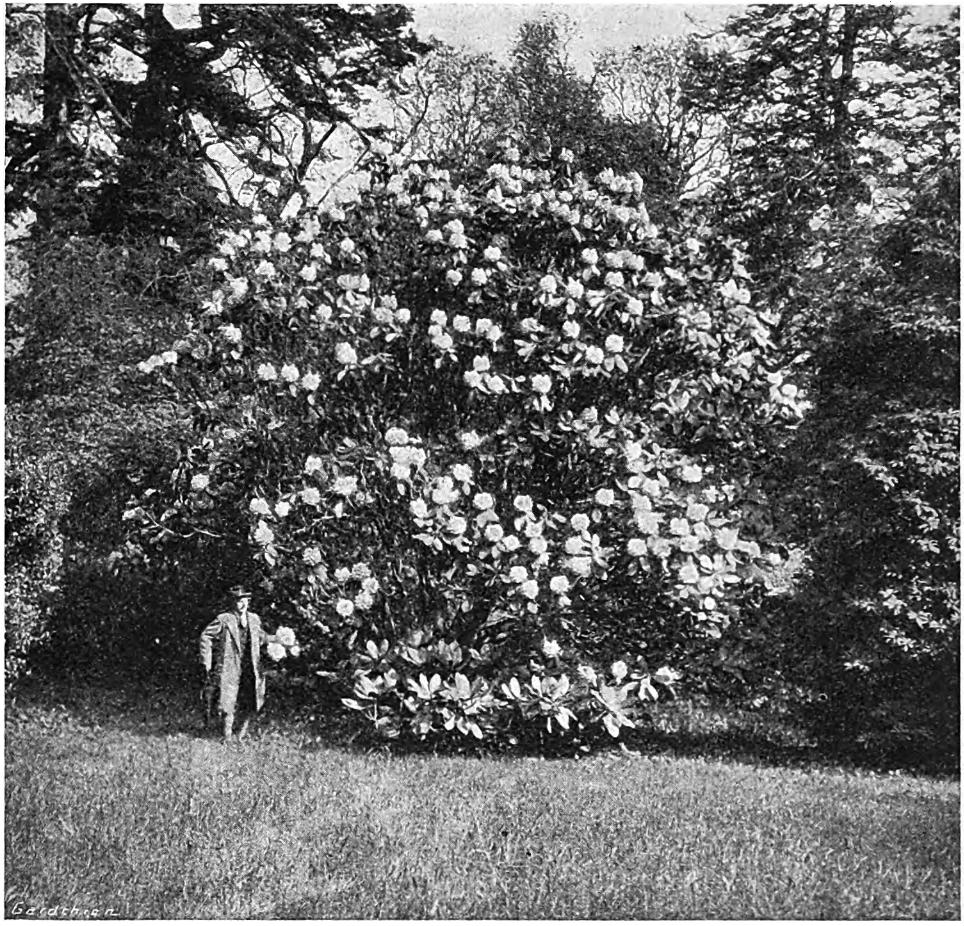

FIG. 58.—A FINE SPECIMEN OF RHODODENDRON FALCONERI.

Publications Received.—*American Plants for American Gardens*, by Edith A. Roberts, Ph.D., and Elsa Rehmann; pp. 131 and 11 plates. Messrs. Macmillan and Co., New York, price 8s. 6d. net. *Gardening in the Lower South*, by H. Harold Hume; pp. 453 and 49 plates. Messrs. Macmillan and Co. Price 21s. net.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Vanda teres.—Specimens of this sun-loving species, also of the hybrid Miss Joaquim, have been making a display of finely-coloured flowers for many weeks. The striking beauty of the flowers command universal admiration, and their beautiful rose colouring is retained well if the plants are shaded while in flower and given slightly drier and cooler conditions. After the blooms are removed, the plants should receive attention at the roots. Those stems that have lost their lower leaves and are rather leggy should have the lower portion cut away to a point that will allow the bottom leaves to rest on the top of the compost, which should consist chiefly of fresh Sphagnum-moss, with a little A.1. fibre intermixed. Ample drainage is necessary, and lumps of charcoal should be added to the compost. Where a large quantity is grown, beds may be made in Teak-wood boxes filled two-thirds with crocks, and the stems fixed in position with a neat stake, filling in firmly with the compost and charcoal, and finishing off with a layer of clean Sphagnum-moss. If so desired, several stems may be placed in well-drained pots, the stems being secured and the compost added as for boxes; this system is much the best if the plants are required for decorative purposes when in flower. Grow the plants in moist surroundings in the warmest house, shading the newly-potted specimens from direct sunshine until the roots are moving freely, when a gradual exposure to full sunshine should be allowed. Spray the plants and surroundings frequently, especially in bright weather, as when established, these Orchids revel in sun-heat and plenty of moisture, both in the atmosphere and at the roots, during the growing season. During the winter months, when the roots are not active, drier and cooler conditions, in the intermediate house, are required. When growth commences in the early spring they should be returned to the warmest house again.

Mexican Laelias.—These late autumn and winter-flowering Laelias have made good progress during the recent spell of bright weather. Plants of L. anceps and its varieties, together with L. Gouldiana, L. autumnalis and others, should be syringed during the morning and again early in the afternoon in favourable weather, although not so heavily as to fill the young growths with moisture, as these soon decay should a sudden change to dull weather conditions set in before they are dried out again; this is particularly the case with L. Gouldiana. If possible, the shading should be removed when the plants are syringed early in the afternoon, and the ventilators closed to induce a sharp rise in temperature, opening the ventilators again later in the evening to allow excessive moisture to disperse, and to keep the atmosphere sweet. A stuffy atmosphere should be avoided at all times. These Orchids revel in sun-heat, and abundance of fresh air and moisture during the growing season. Established plants that are now rooting and growing freely should be well inured to the sun so that shading may be dispensed with during August. During dull periods, the plants should be carefully examined for scale insects which often increase rapidly at this season, and quickly damage the new growths and leaves.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

Peaches and Nectarines.—These will require constant attention in regard to moisture, the exposing of the fruits for extra colour and flavour, and the laying in and securing of successional shoots. There should be no lack of moisture at the roots now that the fruits are swelling, and liquid manure should be afforded to all trees carrying heavy crops. In this latter respect, however, the gardener must be guided by the vigour and general health of the tree. Liquid manure and other stimulants should be withheld from trees that tend to make gross wood, and a note should be made of these, to have them attended to during the late autumn. The cause of gross growth is always to be found at the roots, and, unless remedied, it is hopeless to expect such trees to set good crops of fruits. Peaches do not require a rich rooting medium, and if the soil is too rich, its rankness may be reduced by the liberal use of broken bricks and lime-rubble freely mixed with the staple soil, and firmed thoroughly by ramming. See that the fruits are not unduly shaded by the foliage, for those that lack colour are usually deficient in flavour also. This, however, should not be carried to extremes, for experience has proved to me that the fruits, while swelling, attain to large proportions when only slightly exposed, and, eventually, fully exposed for colour and flavour ten or twelve days prior to gathering. The continued hot and dry weather which we have experienced has brought the season of ripening much more forward than usual. In these circumstances it is advisable to examine the trees daily, and gather the most advanced fruits just before they are fully ripe. Not only is this necessary as a safeguard against insect pests damaging the ripening fruits, but a few days on a cool greenhouse shelf will greatly improve the flavour. The fruits should be laid in boxes lined with soft wood-wool, and shaded with tissue paper from strong sunlight. All extension and successional shoots should be neatly secured in their required positions, and while doing so, see that the older ties are not cutting into the wood; the soft bark, when once wounded by a tight ligature, seldom recovers from the disfigurement thus caused; besides, it is always a fruitful source of gumming. Trees that have been cleared of fruits should have the old fruiting wood and any superfluous growth removed, for this will assist in the proper ripening of the current season's shoots, which will be the fruiting ones of next year. The foliage should be given a thorough washing, and there is nothing better than a good soapy mixture to which has been added a little nicotine.

Aspect and Varieties.—Peaches and Nectarines may be grown successfully against walls in all aspects except northern, but a southern exposure is, undoubtedly, the best. An eastern exposure has the disadvantage, during blossoming time, of catching the early morning sun after a frost, thus rendering the blossoms useless. With efficient protection, however, in the use of fish-netting hung in front of the trees, this disadvantage may be overcome and an excellent set of fruits obtained. There is not the same danger when the trees are grown on south-east, south or south-west aspects, but it is advisable to take the same precautionary measures against frost during the blossoming period. The following varieties suitable for open wall culture can be recommended, and are arranged approximately in their order of ripening. Peaches: Waterloo, Hale's Early, Peregrine, Crimson Galande, Grosse Mignonne, Bellegarde, Lady Palmerston, Golden Eagle and Salwey. Nectarines: Early Rivers, Lord Napier, Darwin, River's Orange, Elruge, Pineapple, Dryden and Victoria.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Early Vineries.—Vines now cleared of their fruits should be copiously syringed late on fine days, a little soft soap and sulphur being added to the water if red spider has been troublesome. Inside borders which have been allowed to get rather dry should be restored at once to a moist, growing condition. If the vines are young and laterals are growing freely, applications of clear water may be good enough, but older vines, with but few laterals, will require more generous treatment, as there is a long period of summer weather before them, and diluted liquid manure may be given freely, and fresh stable litter may be placed over the surface of the beds to prevent evaporation. This mulch may be cleared away in the autumn to make room for the annual top-dressing. Laterals, having had full liberty, may now be checked by partial shortening. Attend carefully to outside borders, and if these are well-drained, do not be afraid of watering them with the hose for a few hours, as the roots should not suffer through lack of water at this stage. As each succession house is cleared of Grapes the vines should receive the same generous treatment with regard to root-watering and late syringing as advised for the early ones. Watch extra strong canes from which the maiden crop is expected next year; these may be improved by gradually reducing the laterals from the base upwards to the pruning bud. All the lateral growths above the pruning bud should be left, but keep the roots active until the vines go gradually and naturally to rest. Succession vineries containing ripe Grapes should be kept cool and airy, and possibly slightly shaded for a few hours on bright days, as black-fruited varieties soon loose colour. Borders and paths may be liberally damped during bright weather, but dull or wet weather will necessitate much drier treatment, and the maintenance of a very steady temperature, otherwise the fruits of varieties like Madresfield Court may crack. Muscat Grapes now ripe, or approaching that stage, should receive plenty of light by drawing the leaves and laterals a little aside, but not to the extent that the full force of the sun will strike the shoulders of the bunches. Sun-heat should now suffice, but in the event of a change to dull or wet weather, a little steady fire-heat will help to keep the fresh, warm air in motion.

Late Vineries.—Houses containing Grapes for autumn and winter use should be kept at a night temperature of 70°, and 80° to 85° by day, with a rise to 90° after closing with sun-heat and moisture. Plenty of good, warm, diluted liquid manure and an occasional dusting with vine manure, Guano or soot will assist the vines, as Muscats especially are gross feeders. If the weather continues steady and plenty of air can be given, scalding may not put in an appearance, as this may generally be prevented by keeping the house warm, with air admitted at night and free ventilation in the daytime; if this treatment is maintained for a fortnight, scalding will be prevented. The winter varieties will now derive great benefit from treatment as advised for Muscats, especially during fine summer weather. Also, like Muscats, they should be kept extra warm at night and the house ventilated freely through the day until the fruits have finished stoning. Lady Downes is most troublesome, but by keeping the berries dry and warm towards morning and allowing the day temperature to rise gradually, scalding may be prevented or reduced to a harmless form; Grapes always scald most under sudden alterations of temperature, when the weather is unsettled. A very little fire-heat will produce the desired effect at this time of the year, and while preventing condensation of moisture, it will increase the size and colour of the berries that double the amount of fire-heat will not give later in the autumn.

Cucumbers.—The weather throughout June and July having been bright and warm, Cucumbers have made rapid progress. Under such conditions their management has been extremely simple and, provided the plants are fed liberally, syringed well and cropped moderately, they will continue fruitful throughout the remainder of the summer. Keep the growths pinched at the first or second joint so soon as the fruits become visible, as waste of sap through bleeding is then prevented. A few old leaves and exhausted growths may be removed at each dressing, but this should not be carried to excess, as anything approaching a check after this date is detrimental to lasting and steady progress. Soft water, at a temperature of 85° to 90° should be used, and a steady bottom-heat of 75° to 80° maintained, light top-dressing of fresh, rough turf, lime rubble and bone-meal should be given frequently.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Hippeastrums.—Probably better known as Amaryllis, these will, by this date, have completed their growth, and so soon as this stage is reached, they should be removed to cold frames or, in any case, if allowed to remain in the house in which they have been growing, should be subjected to a lower temperature with an abundance of fresh air whenever the outside conditions permit, and water should be gradually withheld. Young, unflowered seedlings should not receive this treatment but should be kept growing steadily until they reach flowering size. Hippeastrum seedlings should now be ready for pricking off into pots or pans, and so soon as they are large enough they should be potted singly into small pots and kept growing in an intermediate temperature through the winter. Where seeds were later in ripening, do not hesitate to sow them at once, so that the young plants may be able to attain some size before the winter sets in.

Lachenalias.—If these plants have been treated as advised, they may now be taken down from the shelves where they have been well-baked by full exposure to the sun and the bulbs removed from the old compost and graded in their respective sizes. Large receptacles are not to be recommended for Lachenalias, four- or five-inch pots being most suitable. Place eight to ten of the largest-sized bulbs in a pot, in a compost of good, open loam and leaf-mould in equal parts, with plenty of sharp sand added. Where it is necessary to increase the stock the second-size bulbs may be grown on in boxes or pans to form flowering bulbs for another year. The newly potted bulbs should be placed in a cold frame, and should not be covered with any plunging material, such as is practised with other bulbs grown in pots. Water should be given sparingly during the early stages of growth, and they should be grown under the coolest conditions possible during all stages.

Calceolarias.—Prick off seedling Calceolarias so soon as they may be handled. The compost during their early stages of growth may consist of equal parts of sifted loam and leaf-mould, with plenty of sharp sand added. Place them in a cool house or frame, where they can enjoy plenty of light without being directly exposed to the sun's rays. Slugs are very fond of these plants, and should, therefore, be guarded against, or all one's labour will be lost in a single night.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

French Beans.—In addition to seeds being sown as advised in previous calendars, it will be necessary, where it is essential that a constant supply of French Beans be maintained as long as possible, to utilise empty frames for this purpose. The soil should be of a fairly light, loamy nature. Sow the seeds in rows about one foot apart, allowing nine inches between each seedling for development. It will not be necessary to put lights on the frames for several weeks, but give the plants plenty of light and air so as to encourage sturdy growth. Never allow them to become dry at the roots, and syringe the young plants overhead to keep them clean and in a moist condition.

Globe Artichokes.—Cut the heads of these immediately they are of suitable size and commencing to open. If not required at once, they may be stood in water, changing the water every day, and kept in a cool place until wanted.

Celery.—Dust the Celery plants now with soot as a preventive from attack by the Celery fly. If the pest appears, no time should be lost in applying the soot or spraying the plants with Bentley's insecticide, repeating the operation after an interval of two weeks to make certain that the fly has been checked, for once the larvae have settled in the leaves the crop will be checked and possibly ruined.

Herbs.—Any herbs which are to be dried for winter use may now be cut, choosing a dry day for the work, and tied up in bunches of medium size. Hang the bunches in a dry, airy shed to dry them thoroughly, and, later, remove them to the store-room, which should be kept perfectly dry.

Endive.—As Endive seedlings attain suitable size they should be transplanted into light, open soil, allowing eighteen inches between the rows and one foot from plant to plant. Further plantings of Lettuces may be made, preferably of black-seeded varieties, as these withstand the cold weather well.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Cistuses.—These are delightful shrubs for the large rock garden. The home of the genus is the Mediterranean regions and, unfortunately, none of the species is perfectly hardy; many did not pass through last winter successfully, and fresh stocks of these will have to be raised. All are easily propagated by seeds or cuttings. Some of the species produce seeds freely, but most of the hybrids are best raised from cuttings, which root freely if taken during August or early September and inserted in a cold frame or under a bell-glass. Cistuses do not transplant successfully from the open ground, therefore the cuttings should be potted on as they become rooted and kept growing in pots until required for placing in their permanent positions. Dry, sunny banks should be chosen for growing them, where they can have full advantage of all the light possible, yet be sheltered from high winds. Soil is an important factor; this should be of a light, sandy, well-drained medium; in such soils they will winter much more successfully. Planting should not take place until late spring; if planted during autumn and hard frost sets in, the plants may be crippled and never grow so freely as those planted in spring. Cistuses in general are not long-lived, therefore it is advisable to root a few cuttings each year to replace worn-out plants. C. cyprius and C. laurifolius are strong, robust-growing plants and longer-lived than the majority. C. purpureus is one of the best, making a fine symmetrical bush four feet high, and it is extremely attractive when covered with its reddish-purple flowers, with a deeper-coloured blotch at the base of each petal. C. crispus, a compact bushy species, is fairly hardy and will survive our average winters. C. Silver Pink is a real grand shrub, and has many good points to recommend it. The colour is a clear pink, the habit of the plant dwarf and bushy, and it has a decided advantage over many others in that it carries its flowers on stiff, erect stems; these blooms last well into the afternoon.

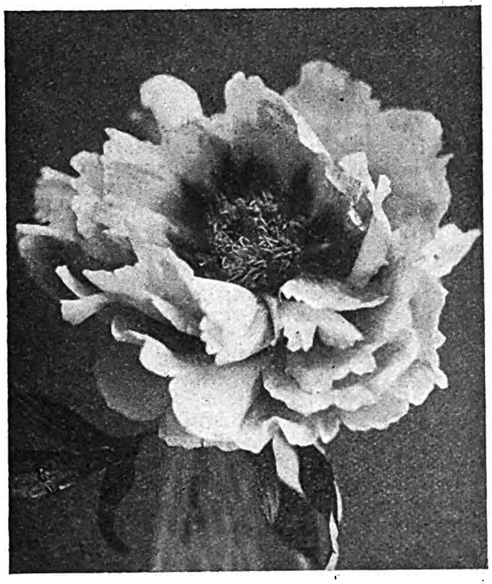

FIG. 59.—PAEONIA MOUTAN VAR. FUJISOME-KOROMO
(see p. 131.)

Narcissus Species.—The miniature species of Narcissi are charming companions to the Crocus species for pockets in the rock garden. N. Bulbocodium loves moisture and is never so happy as when placed near the bank of a stream or in moist meadowland. It will grow under the drier conditions, but the flowers will not be of full size. At Wisley it has naturalised itself freely in all manner of places, on dry parts of the alpine meadow, by the side of ditches and in the moist, peaty soil of the wild garden. Such a gem should be planted freely, in various places and encouraged to naturalise. Narcissus triandrus is an elegant and charming species, equally useful for sheltered nooks in the rock garden and in warm soils where the vegetation is not too strong; it will naturalise itself, flowering the second and third year from seeds. Another dainty species is N. cyclamineus, the first species to bloom. It loves a moist, peaty soil, and where such conditions do not exist, means should be found to prepare pockets of peaty soil for its reception. It does not seem to grow so freely in the grass as the former species, being more at home in the moist woodland, among moss.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Vegetables.—Where there is difficulty in wintering Parsley out-of-doors, steps should be taken to have a supply in frames, either planted in beds or in ordinary seed boxes, the latter being, perhaps, the better method, as they may be moved near the glass, or into a heated frame during spells of frost. Any ordinary soil containing leaf mould and some old lime rubble will suit this crop. Keep the frame close until the plants are established, after which open treatment is best so long as the weather permits. A sowing of Cauliflower seeds should be made in an early border to supply plants for pricking-off in frames for next spring. I have found Walcheren a good sort for this purpose, but Early London, All the Year Round, or any good variety should prove satisfactory. The soil of the seed bed, and later on in the frame, should not be rich, as a rather firm, short growth is best for over-wintering. Although it is a mistake to earth-up Celery too soon, no time should be lost when sufficient height and girth have been attained in attending to this, as growth is much freer and better after the first earthing. Where snails or slugs abound, dry soot and, or, flour of lime should be dusted on the plants and soil as the work proceeds. The plants and also the soil, should be dry at the time of earthing, and the stems should be carefully tied together. Press the soil gently around the stems before removing the ties.

Raspberries.—As the crop is cleared from Raspberries no time should be lost in removing the old canes and fixing a suitable number of new ones to the supports. In cases where the growth is left projecting above the wires, there is danger that it may be broken by wind; to avoid this bend such growths over temporarily and fix them near their points. No cutting back should be done at present, except of surplus canes, which should be cut back to the base.

Cinerarias and Primulas.—These are now growing freely and should not be allowed to dry out at the roots or suffer from lack of either root or top room, potting them on when necessary. A cool position is best for them, where little shading will be required. For Cinerarias, the compost, which should be used in a fairly rough state, may consist of three parts of loam, one of rough leaf mould, and one old cow or sheep manure, with sand and a little charcoal added. This will suit all kinds of Cinerarias, but for Primulas no animal manure should be used. A suitable mixture for these is two to three parts loam, one of leaf mould, and one of sand, lime-rubble and charcoal.

ALPINE GARDEN.

SENECIO ABROTANIFOLIUS.

The genus Senecio, in general, can hardly be associated with the rock garden, but as is usually the case, there is an exception, which in this instance is Senecio abrotanifolius, a valuable, early summer-flowering alpine plant from the Engadine and eastern ranges of the Alps.

The late Reginald Farrer, in his well-known work, *The English Rock Garden*, suggests that an association of this Composite with Campanula alpina, or C. rotundifolia, is very attractive, and he describes how that in the Engadine it is naturally associated with C. barbata, and such a colour combination—the flowers of S. abrotanifolius are a rich orange-yellow and quite one-and-a-half inches across—must be very effective and well worth reproducing in the rock garden.

This Senecio has finely-divided, glossy, dark green foliage, and when planted in a bed of stony, well-drained, light but moderately rich, loamy soil, to which some peat may be added with advantage, is not niggardly in the production of its inflorescences, which terminate the branched flower stems at a height of nine inches to one foot. S. abrotanifolius may be increased by seeds, which in good seasons, are produced quite freely, or by division. *M. W.*

TUNICA SAXIFRAGA.

As we approach autumn days we begin to prize more highly the flowers which linger in their opening, and are with us in the time when the rock garden is apt to become less bright and attractive. Some of these give us a foretaste of their beauty by flowering before summer has departed, and among these is Tunica Saxifraga, which even begins in June, at times, and favours us with a profusion of its little stars until, and even after, frost comes to despoil us of its latest flowers. This native of the Southern Alps, even to the Mediterranean, is perfectly hardy with us, and although in its native habits it seems to revel in the sunshine, it will even flourish with us in partial shade, although if we want to give such a precious little treasure its due we should plant it in the sunniest spots we have. When in flower it is a picture of elegance, the slender, graceful foliage being spangled over with little flowers, varying in different plants from pink to white and even in one case affording us double blooms, although these are less graceful than the single.

Tunica Saxifraga is very readily raised from seeds. Seedlings vary in colour, and the best should be chosen for retention and propagation by cuttings. This little plant soon forms a mound-like bush of loosely arranged branches which look almost too ethereal for the rude winds of late autumn but are yet unscathed by them. A light dry soil is favoured by Tunica Saxifraga, which has been in cultivation for many years.

CAMPANULA G. F. WILSON.

Dwarf Campanulas continue to retain their favour in most rock gardens of the present day, and no one can deny that this is justified by the charms displayed by the vast majority of these fascinating flowers. They are numerous, and the choice is very great, but among those I should not like to be without is that delightful hybrid named G. F. Wilson. Its beauty is undeniable and a good group gives us much delight as we view it in the rock garden. I am glad to see that it was appreciated by Farrer, who wrote of it as: "an important garden plant," and describes its chief features with much accuracy. It grows about six inches high, and produces a wealth of deep blue bells which are half erect, and open at the mouth. The charm of the colouring is enhanced by the paler tone of blue which shows itself towards the base of the bells, and which adds much to the charm when the flowers are examined more closely.

Although dwarf, it is a vigorous and easy grower, with rather grey, hairy leaves. It increases wonderfully rapidly at the root, without any tendency to being rampant, and I have here a large plant which has developed from a small piece put in two years ago. This is in a heavier soil than is afforded to other plants of Campanula G. F. Wilson; it seems to me that it flourishes in a heavier one than that generally provided for rock plants. It is said by Farrer to be sometimes called C. Valfourii, but I have never met with it under that name; it is also said to be quoted in some continental lists as Wilsonii. The parentage of this lovely little Campanula are understood to be C. pulla and C. turbinata. It has all the vigour of C. turbinata with a share of the grace of C. pulla. I consider that the plants should be allowed to grow to a good size, and one like that here blossoms so profusely that not a leaf can be seen through the mass of charming flowers. It is easily increased by division. *S. Arnott.*

BULB GARDEN.

LILIUM AURATUM.

The decorative value of this handsome Lily, whether grown as a pot plant or in the open border, is so well-known and acknowledged that it is not necessary to recommend it; but the object of this note is to record an extraordinary result from a system of cultivation in pots which is not universally practised. The system is that of growing these plants in pots from year to year without shaking out the bulbs and repotting, simply removing the top soil and top-dressing with new compost, and relying on intensive feeding to maintain vigour in the plant.

On a recent visit to Chadshunt Manor, Warwick, the residence of Colonel Stewart, I saw several dozen pots of L. auratum and L. speciosum grown under this system, and the gardener, Mr. Simmonds, told me that this is the third year of flowering the plants in the same pots. Three bulbs are grown in each ten-inch pot, and the plants showed remarkable vigour and flowered with great freedom. One bulb of L. auratum, however, carried an extraordinary inflorescence which must, I think, constitute a record. Throwing a single, but fasciated stem, this divided at a height of five feet into several short umbels, the whole producing a monstrous head with a total of forty-eight flowers. The individual flowers, although relatively small, were perfect in every way.

It is recorded that a single plant grown in a pot was shown at a meeting of the Royal Horticultural Society in September, 1884, carrying twenty-five flowers, the stem being fasciated and the flowers borne in two distinct umbels; it would be interesting to know if there are other records of such a large number of flowers. *W. A.*

ORNITHOGALUM NUTANS.

Ornithogalums are not largely grown in ordinary gardens although some of the hardy species are far from deserving neglect. The one most generally cultivated, if we can write "cultivated" of a bulb which is usually left severely alone to its own devices, is O. umbellatum, the Star of Bethlehem. It can well look after itself, as it increases with remarkable freedom, both by offsets and seeds. The one under notice, O. nutans, the Nodding Star of Bethlehem, is of quite a different character. Instead of forming compact masses of small flowers rising but little above the soil, it throws up very elegant spikes of silvery-grey flowers, prettily lined with light green on the exterior and silver-like in appearance. The flowers are of good size, and the plant is perfectly hardy.

It is by no means an expensive bulb and is eminently adapted for naturalising in woodlands and out-of-the-way spots. It is also pleasing on large rockwork, where it looks best when rising through Mossy Saxifrages, Arabis and plants of similar carpeting habit. It is very pleasing seen rising through Myosotis or purple Aubrietia. The flowers are generally produced in May and June. It is a native of Britain but does not appear to be widely spread in nature. O. nutans was figured in the *Botanical Magazine*, t. 269. The height is given in some works of reference as six inches, but it grows taller than that in good soil. A variety called Bouchanum is said to exist but I am not aware of its whereabouts. *S. Arnott.*

ORCHID NOTES AND GLEANINGS.

SUMMER-FLOWERING CYPRIPEDIUMS.

The Cypripediums with handsomely tessellated foliage form a useful and very free-flowering group of Orchids. Such sorts as C. Lawrenceanum, C. Hyeanum, C. callosum var. Sanderae, C. Curtisi var. Sanderae, and C. Enchantress, have been producing flowers for many weeks, while the robust-growing C. Maudiae often produces two crops of flowers in the year; the beautiful foliage of well-grown specimens is very attractive even when the plants are not in flower. Specimens that have passed out of flower may now be repotted, if necessary, the thick, fleshy roots generally keep close to the surface of the soil, therefore pans are suitable receptacles. Ample drainage is necessary; especially if deep pots are used, while a compost of A.1 fibre and chopped Sphagnum-moss should be quite suitable as a rooting medium, working it in carefully between the brittle roots and finishing off with a little extra Sphagnum-moss on the surface. Loam is not necessary for these Cypripediums.

A little extra shade during bright weather should be afforded until the roots are established in the fresh compost. These plants grow well at the warm end of the intermediate house, and if given moist conditions, quickly re-establish themselves. Water should be afforded carefully to the roots as advised for other newly-potted Orchids, and the roots and growths should be thriving vigorously before the plants are allowed to flower again.

The warm-house kinds, such as C. Rothschildianum, C. Sanderianum, C. Stoneii, C. Druryii and others that are now commencing to grow again, may be repotted now. Use well-drained pots and a compost of equal parts of fibrous loam and finely-cut A.1 fibre, and one part of chopped Sphagnum-moss, adding crushed crocks as the work proceeds. Shade the plants from strong sunshine and water them very sparingly until the roots are moving well in the fresh compost. *W. G.*

HARDY FLOWER BORDER.

ASTER ALPINUS VAR. PEGGY.

This is a remarkably fine Aster, exceedingly beautiful and quite capable of adding not a little to the attractions of the hardy flower border or the rock garden; the large flowers are held aloft on sturdy stems and are coloured an exquisite shade of silvery-blue or greyish-blue—it is a shade not easily described but one of unusual beauty. The golden centre enhances the attractiveness of the flower and endues a group with a most striking appearance.

This is a really good plant, one to thrive in any tolerably good soil; the colouring of the flowers will harmonise with that of a wide variety of other plants and is especially noteworthy when used in a grey or blue border. A pleasing association which I recently encountered was this Aster and Campanula Telham Beauty, each a companion to the other. *Ralph E. Arnold.*

CRAMBE TATARICA.

One of the most handsome of the Crucifers for the herbaceous border is Crambe tatarica, I believe it is a native of Hungary, where it is known as "Tartar Bread," some of the Crambes being of economic value and grown as vegetables.

A plant of C. tatarica in flower here during June was quite the glory of the border, just the one spike, but what a spike! Fully five feet high and with a diameter of four feet or more, the gracefully branching stems bearing on all their length multitudes of large white flowers, reminiscent of a Gypsophila but larger and handsomer. The whole plant in fact, when in flower, reminded me strongly of some Gargantuan Gypsophila, but even more graceful, with the exception of the leaves, which are large and glaucous and slightly rough, rather like those of a Bocconia.

The plant sets a good crop of seeds, and increases readily by means of root cuttings. A good mass of it effectively combined with some heavier subject would be a very telling feature in the herbaceous border during its season. *Will Ingwersen, The Birch, Sharpthorne, Sussex.*

SMILACINA RACEMOSA.

Smilacina racemosa is a graceful Liliaceous plant inhabiting moist copses and thickets, and is distributed over the greater portion of eastern North America. From a fleshy, rhizomatous root stock the aerial stems are produced. These are slender and arching, usually finely pubescent above and are from fifteen inches to thirty-six inches in length. The foliage is very decidedly attractive, the leaves being arranged in alterate fashion, the upper sessile and the lower very shortly petioled. They are oblong-lanceolate to oval in shape, and are from four inches to seven inches in length and almost half as broad. The under-surface is finely pubescent while the margins are minutely ciliate. Both surfaces are somewhat glossy and the strongly-marked nerves, together with the rich, but delicate, green of the foliage, add to the attractiveness of this plant.

The flowers are borne on very short pedicels in a terminal, racemose panicle. Individually they are insignificant, but in the aggregate they form a pleasing inflorescence much resembling in general appearance a spray of a white Astilbe, and exhaling a pleasing odour. The fully-developed flowers are creamy white and the unopened buds delicate green in colour. They are borne during May and June and are succeeded by aromatic berries, which are bright red, speckled with purple markings. The berries are about a quarter-of-an-inch in diameter.

Known colloquially by the name of False Spikenard, Smilacina racemosa is a pleasing and worth-while plant for the woodlands or wild garden. *T. H. Everett, New York, U.S.A.*

ACONITUM LYCOCTONUM.

This decidedly pretty Monkshood merits a place in many floral schemes and by virtue of its charming port and the pale yellow colouring of its flowers, lends itself to delightful combination and harmony with many other plants.

In that fine work *Some English Gardens*, by George S. Elgood, and Gertrude Jekyll, there is a delightful reproduction of Lilium candidum and Aconitum Lycoctonum intermingled; it depicts a quietly-coloured but not the less beautiful scheme, where the amply-branched inflorescences of the Monkshood are in pleasant contrast to the upright and equally graceful flowering stems of the Madonna Lily. The luminous, sulphur-yellow of this Aconite provides an ideal foil to the purity of the fine old Lily.

The fine dark green and glossy leaves of this Monkshood persist into the late autumn and are very ornamental. A native of Austria and the Tyrol, A. Lycoctonum is a good plant for the copse or thin woodland, for the mixed flower border, the streamside or in wood clearings. The plant enjoys a rich, deep, soil and is easily increased by division of the roots. It is well to remember the poisonous nature of the roots of Aconites, and the necessity to keep these plants away from all edible roots.

A Lycoctonum grows from three feet to five feet high, and flowers from late June to September.

PAEONIA VEITCHII.

This remarkably fine herbaceous perennial was introduced from Western China, by Mr. E. H. Wilson, somewhere about 1909; a unique feature of the plant is the production of several blooms on the same stem; the colour is purplish-crimson, and each flower is nearly four inches in diameter. A well-grown specimen is unusually handsome; the somewhat pendulous blossoms are carried upon wand-like stems richly furnished with graceful foliage, each glossy green leaf divided into fifteen segments—a charming picture of grace and colour.

P. Veitchii succeeds in a rich, somewhat retentive soil and, like other Paeonies, dislikes disturbance. P. Veitchii was figured in *The Gardeners' Chronicle*, 1909, Vol. II, p. 2, fig. 1. This species, P. Delavayii, and some others, are capable of creating an interesting feature in the garden; as foliage plants they are strikingly handsome and few plants exhibit so perfect a balance between flowers and leaf. *Ralph E. Arnold*

RHEUM ALEXANDRAE.

The stately and impressive Rheum Alexandrae is at present growing in the gardens of Captain and Mrs. Stewart of Shambellie, Kirkcudbrightshire; it withstood the past winter without apparent injury and is looking well this year.

The plant is still rare in gardens, but is deserving of a place for the sake of its bold, three-feet-tall growths and its yellowish, oval bracts, flopping on the spike. A good group of R. Alexandrae would look well in an open place in the woods. *S. A.*

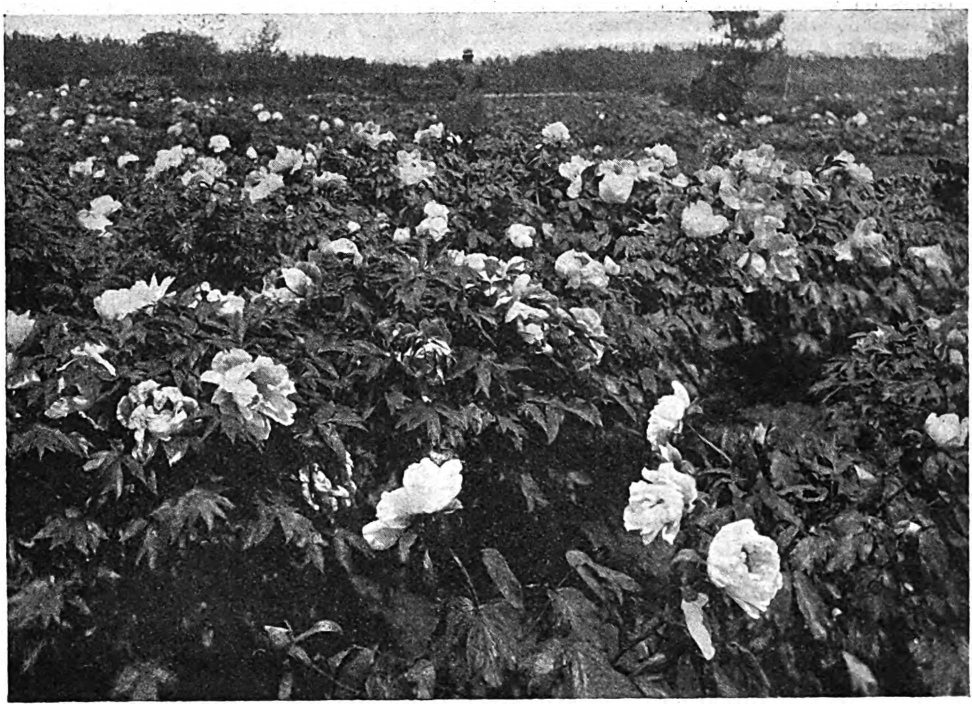

FIG. 60.—MR. JITARO NAGAO'S PAEONY BEDS IN NORTHERN JAPAN.
(see p. 131.)

TREES AND SHRUBS.

PONTENTILLA DAVURICA AND P. FRUTICOSA VAR. MANDSCHURICA.

These Cinquefoils are a couple of very charming rock-garden shrubs and they are quite distinct from any of the others, which in a race so confusing is no small merit. P. davurica, a native of Siberia and other parts of northern Asia, makes a very compact, twiggy and dense little bush. It grows slowly and seldom attains a height of much over a foot. The green leaves, of five leaflets, are deciduous, about an inch long and free from hairs. Although the prettily-rounded, white flowers, averaging one inch across, are much like those of other shrubby Potentillas, the fact that they are borne singly, together with the erect, close habit of growth, and smooth leaves, will serve to identify this species should doubt arise.

P. fruticosa var. mandschurica is even more delightful than the above, for it has a more elegant manner, extending its almost prostrate branches laterally and delighting to spread them over the face of a sunny rock. It has never exceeded six inches in height here, but will in course of time cover a space two or three feet across. Like the type, this variety is deciduous, the rather large leaves being slightly silvered with a grey down. The pure white flowers are also a good size, well over an inch in diameter and they are produced with the utmost freedom nearly all the summer. Both of these shrubs are, of course, perfectly hardy and of easy culture in any free soil. I grow them in a stony, gritty loam of the most meagre description. They enjoy full exposure and appear to be as indifferent to drought as they are to our changeful winters. *N. Wales.*

GENISTA AETNENSIS.

The Mount Etna Broom is one of the most useful of the tall species, as it flowers during July. Growing, with age, up to at least twenty five feet in height, Genista aetnensis is an attractive subject for wide shrubbery borders, and, when space permits, massing on a sunny slope in the pleasure grounds.

In course of time the old branches become rather gaunt and sparse in appearance, hence it is more effective in groups than cultivated as single specimens. The golden-yellow blossoms are freely disposed, singly, on the pendulous young branchlets. Seeds are freely produced and provide a ready method of increase.

Grow the plants in pots until large enough to place in their permanent positions as it is one of the least satisfactory of Brooms to transplant from the nursery border. *A. Osborn.*

NOTOSPARTIUM CARMICHELAE.

The note by *North Wales* regarding this fine New Zealand Broom (page 47) is of much interest. There has been a fine plant in the rock garden at Orchardton, Castle Douglas, in the Stewartry of Kirkcudbright, for many seasons, and it has flowered well for years. It was badly cut one severe winter about fifteen years ago, but recovered in time and has thriven since. I understand that it withstood last winter quite well. I have a small plant which has withstood two winters. In that of 1927-8 it suffered from frost after a wet autumn, but grew away again. In the winter of 1928-9 it suffered a good deal, but is alive and making fair growth. My plant is close to a south-west wall, in a dry border. After the experience of last winter, I have no fear of the Notospartium here, and hope it will come into bloom in some future year. By the way, several branches of the Moonlight Broom (Cytisus scoparius var. pallidus), were killed last winter and had to be cut off, but it was fully exposed to cruel winds during the severe frost. *S. Arnott.*

THE GENUS PRIMULA.

(*Continued from p.* 108).

POLIA (Craib). Brake P.

(Petiolaris-Davidii).

THIS charming perennial species has a stout, thick root-stock clothed with thin, brownish scales. The leathery leaves, in tuft, have elliptic or egg-shaped-elliptic, rarely oblong-elliptic, blades, usually rounded at the tip and tapering at the base to a stalk, in all nearly six inches long; margins furnished with sharp, sinuous teeth fringed with minute hairs; upper surface smooth, underside clothed more or less sparsely with white meal. Flower stem four to five inches tall, sparsely covered with minute down. Flowers, two to ten in an umbel, rose, blue or violet. Corolla about one inch across, divided into five broadly heart-shaped segments, bilobed at the tip; tube about three-eighths-of-an-inch long with a conspicuous ring in the mouth. Flowers in May.

Grows on woody hillsides, in rocky woods and Bamboo thickets, in Yunnan, western China, at from 6,000 to 7,000 feet above sea-level.

Culture; Good Oak or Beech leaf-soil and fibrous loam, in a cool, shady spot, should suit it.

POLYNEURA (Franch.). Many-nerved P.

(Cortusoides.)

This hairy, perennial species produces a tuft of almost circular leaves, from three-quarters-of-an-inch to two-and-a-half inches across the blades, which are borne on rounded, downy stalks from four to eight inches long; margins divided into about eleven broadly oval, blunt lobes which are furnished with blunt or sharp teeth on their margins; upper surface downy, underside clothed with longish, woolly, grey hairs. Flower stem four to sixteen inches tall, bearing a solitary umbel, or from two to three superposed umbels, of purple blossoms, on rather long stalks clothed with grey down. Corolla half-an-inch to five-eighths-of-an-inch across, divided into five deeply bifid, heart-shaped lobes; tube cylindrical, twice as long as the calyx.

Grows in cool, shady places on mountains near Kiala, in Szechuan, central China.

Culture: Good loam and leaf-soil, in a cool, shady spot, are the conditions indicated.

POLYPHYLLA (Franch.). Many-leaved P.

(Denticulata.)

A small, perennial plant probably of not long duration, with a rosette of oval-lance-shaped, blunt or pointed, membranous leaves, tapering into a stalk which is sheathing at the base, in all five-eighths-of-an-inch to one-and-a-half inch long. Flower stems two to three inches tall, bearing an umbel of six to eleven violet or pale lilac blossoms on very short stalks. Corolla about a quarter-of-an-inch across, funnel-shaped, divided into five broadly heart-shaped lobes cleft to the middle; tube cylindrical, a little longer than the calyx. This plant is, according to the latest grouping, a sub-species of P. pseudodenticulata (Pax.) Flowers in September. Not in cultivation.

Grows in damp, peaty pastures at Lan-Kong, near Tali, in Yunnan, western China, at 10,000 feet above sea-level.

Var. monticola (Hand.-Mazz.). A more robust plant than the type, with densely toothed leaves; the yellowish, oval, herbaceous scales which form the resting buds are about one-and-a-half inch long, and are persistent until the foliage dies down. Damp mountain pastures in northern Yunnan and Szechuan, at from 7,800 to 9,750 feet above sea-level.

Culture: As for P. denticulata.

PRATICOLA (Craib). Meadow P.

(Petiolaris-sonchifolia.)

A dwarf, herbaceous, perennial species with a tuft of thin, green, spathulate leaves about one-and-a-half inch long, rounded at the tip, wedge-shaped at the base, ending in a more or less distinctly winged stalk; margins thickly furnished with small, sharp teeth. Flower stems two to three inches tall. Flowers purplish-blue, about five-eighths-of-an-inch across, divided into five broadly wedge-shaped or egg-shaped, blunt lobes whose margins are furnished with three sharp teeth; tube cylindrical, about half an-inch long. Flowers from April to July.

Grows in open, moist, stony pastures on the mountains of the Shweli-Salwin Divide, in Yunnan, western China, at 10,000 to 11,000 feet above sea-level.

Culture: Good calcareous loam, in a damp, but open spot, should suit it.

PRATTII (Hemsl.). Pratt's P.

(Nivales).

A smooth, dwarf, perennial species with a rosette of lance-shaped leaves from one inch to three inches long, pointed at the tip and very narrow at the base; margins nearly entire. Flower stem four to six inches tall, bearing a many-flowered umbel of bright yellow blossoms. Corolla about half-an-inch across, lobes heart-shaped; tube cylindrical below, slightly dilated upwards. In cultivation in 1920.

Grows in damp, rocky, exposed places, on the mountains of Szechuan, central China.

Culture: It should succeed in good calcareous loam, in a damp spot.

PRENANTHA (Balf. f.). Rusty-stemmed P.

(Candelabra.)

A small-flowered, perennial species with a rosette of few, papery leaves from four to five inches long, with oblong, egg-shaped blades, rounded at the tip, tapering to a winged, sheathing stalk about twice the length of the blade; margins furnished with irregular, horny-tipped teeth; upper surface channelled lengthwise, underside greyish-green, intricately veined, probably somewhat mealy. Flower stem reddish, about six inches tall, bearing one, rarely two, superposed umbels of four to seven yellow, fragrant blossoms, on curved stalks about half-an-inch long. Corolla about a quarter-of-an-inch across, with nearly square, erect, retuse lobes; tube cylindrical, nearly twice as long as the calyx. Flowers in June and July.

Grows in damp situations in the Sikkim Himalayas, near Jongri, and near Talung, at 9,000 to 12,000 feet above sea-level.

Culture: As for P. Poissonii. *A. W. Darnell.*

(*To be continued*)

THE CULTIVATION OF NEW ZEALAND PLANTS IN BRITAIN.*

(*Continued from p.* 108).

MODIFICATIONS AND NATURALISATION.

SEVERAL of our plants, under the influence of new climatic conditions, have altered their habit a good deal. The most remarkable instance of this that came under my notice was Muehlenbeckia ephedrioides, as grown in the rockeries at Edinburgh. It is here a quite leafy plant, taller and more luxuriant than I have ever seen it as a native. I noticed the same kind of modification in the case of Carmichaelia Enysii (in Edinburgh and elsewhere) and in Coprosma Petriei, which in some places hardly forms a mat at all. But the most extraordinary of these changes, I thought, was to be seen at Tresco Abbey, where the Pohutukawa (Metrosideros tomentosa) may be seen, not only putting forth aerial roots (which I do not think it ever does with us), but also sending down branches which, in reaching the ground, take root like those of the Indian Banyan tree. In Guernsey, also, Cabbage Trees sometimes send out aerial roots—perhaps they do this in New Zealand, but not to my knowledge.

Among plants which have changed more or less—usually in the direction indicated above—I noted Myosotis Traversii (at Edinburgh), Raoulia glabra (at East Grinstead), Helichrysum Selago, Muehlenbeckia axillaris and Poa Maniototo (at Edinburgh).

To show how "willing" some of our trees are in the congenial climate of the Scilly Isles, I may add that Nothofagus fusca has there grown to eighteen feet, a Kauri to fifteen feet, and Pseudopanax crassifolium to twenty feet, all in twenty years.

PARTICULAR GARDENS.

Without going into detail, I may state as a result of my observations that, as already indicated, Edinburgh and Tresco Abbey stand out as the best worth study of all British gardens where our plants are grown; that the rockeries and gardens at Kew are very rich in Veronicas (about seventy-five species are named); that Mr. Millard of East Grinstead has had very great success in growing our alpines, and has in cultivation some few plants that I have not seen elsewhere (*e.g.*, Myosotis decora and Wahlenbergia saxicola); that the gardens at Wakehurst Place contain a very great number of our alpine plants, while the greenhouses are rich in our subtropical species; that both Captain Simpson Hayward and Major Johnson, in Gloucestershire, have interesting collections—at Icomb Place, for instance, I saw fine, large specimens of the Niggerhead (Carex secta), which I saw nowhere else; that the Ludgvan Rectory garden, although small, is exceedingly interesting—here may be seen, for instance, the "Honeysuckle" (Knightia excelsa); three or four of our Ratas, and as many of our Beeches; Pittosporum Dallii; Dodonaea viscosa, Cordyline indivisa, and Senecio Hectori; while the churchyard, adjoining the garden, is embellished with a dozen fine Cabbage Trees and several examples of Olearia Forsteri; and that a very fine collection of our hardier shrubs and trees is included in the vast cultivations of the Hon. Vicary Gibbs at Aldenham House, where they are looked after by a specialist and named with unusual accuracy.

If I were asked what were the most successful single plants, from the gardener's point of view, seen by me in Britain, I should not find it easy to reply. The peculiar conditions in the Scilly Isles give Tresco a very great advantage, over all competitors, and it would be agreed I think, that the Pohutukawa in full bloom, as it may be seen here, in July, is the finest thing of its kind in the running. A particular plant of the Phormium tenax in the Rectory garden at Ludgvan was very hard to beat. It is a variegated form, fully twelve feet high, with extremely broad and lusty leaves. Then there was a specimen of Olearia macrodonta in bloom at Wakehurst Place in August, which we all admired immensely; in fact, no finer garden shrub could be imagined. This plant is at least twelve feet high, and has achieved a massive rounded form, of perfect shape, no less than thirty feet in diameter, and this was a mass of white blossom.

It was pleasant to find that few of our plants, if any, were making themselves a nuisance. At Edinburgh, however, it was noted that our little Pratia angulata had established itself in the lawns, and was rapidly spreading (as it sometimes does in Christchurch), its direction of movement being downhill—rather a remarkable thing I thought. And in one garden I found that our innocent little Epilobium nummularifolium was spreading in the rockery. as it always tends to do, and that the proprietor was always rooting it out, and cursing it very heartily. I am told that Nertera depressa, in western Scotland, spreads in lawns, as Pratia angulata does.

PARTICULAR GENERA.

Looking back over my lists of New Zealand plants cultivated in Britain (of which a complete catalogue will be published later) I find that the various genera (the more important groups only) are represented as summarised below. It will be seen that a very large part of our flora is here, although there are some remarkable gaps to be dealt with later on. Major Dorrien Smith

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*By Professor Arnold Wall, Canterbury College, Christchurch, N.Z. Reprinted from *The Press*.

is sure that he has had at one time at least two-thirds of our whole flora in the gardens at Tresco Abbey, and that he has now about half of it, but I think that in this computation the grasses, Ferns, Cyperaceous and Juncaceous plants, etc., have been ignored. Attention is here concentrated upon plants grown in the open.

The following account is not intended to be exhaustive and is not to be taken as quite authoritative. I have no doubt that I have missed some things; either I did not visit the particular garden where some plant, here unmentioned, is cultivated; or passed other by in the all-too-hasty examination of the vast extent of the Edinburgh Rockeries, or the great jungly plantations of Tresco Abbey, or the great area of cultivations at Aldenham House and Wakehurst Place.

Veronica, as our largest genus, has, of course, received the lion's share of attention. Most of our Veronicas are here, in one place or another, and a great many more which are hybrids or not identifiable with certainty. Among those which I have not seen or heard of on this side are V. Gilliesiana, V. Haastii (although this name is often applied to quite other things), V. Thomsoni, V. pulvinaris, V. Raoulii, V. salicornioides (although the name occurs), and V. spathulata. I listed so many as seventy-five named species at Edinburgh alone, and there are others there which are hard to name.

Ranunculus is much neglected. Many try to grow R. Lyallii, mostly in vain, and R. Buchanani is at Edinburgh, also R. Matthewsii, the natural hybrid; and R. insignis is fairly frequent; but I have not seen one of the other forty or so of our Buttercups.

Olearia is a great favourite. All the commoner species are grown, especially O. macrodonta (and varieties), O. ilicifolia, O. virgata and O. odorata. In one place or another, I think I have seen all our Olearias except O. Crosby-Smithii and O. operina. Olearia (Pachystegia) insignis is quite frequent and very hardy; it successfully withstood the severe winter of 1927-28 at Wakehurst.

Senecios, especially S. Monroi, S. compactus, S. Greyii and S. laxifolius, are largely grown. The smaller herbaceous species are not so frequent, but I have seen here and there S. bellidioides and S. southlandicus.

(*To be concluded*).

NOTES FROM KEW.

Two large bushes of Rhododendron auriculatum have a considerable number of trusses of open flowers at the north end of the Rhododendron Dell. This species does not commence to grow until quite the end of July, and about the same time the flower buds commence to swell, so that the large, white blossoms are at their best during the first half of August. Flowering at this season, when we expect hot sunlight, R. auriculatum should be planted in the half-shade of open woodland, or similarly protected positions. These two Kew plants are particularly interesting, being two of the original batch of seedlings raised at Coombe Wood, from seeds collected in China, during 1900, by Mr. E. H. Wilson. The bushes are now some twelve feet in height and eighteen feet in diameter.

A considerable number of plants of an interesting hybrid, R. auriculatum crossed with pollen of R. ponticum, have been flowering for the last three weeks in a bed near the Brentford Ferry Gate, and in the woodland clump near the Lion Gate. It is a very distinct cross, both in leaf and flower, the latter being of a very pale mauve shade.

A distinct group of colour is furnished by the long, feathery, rosy-pink blossoms of Tamarix pentandra (*syn.* P. hispida aestivalis), in a large, round bed bordering the Broad Walk near the Pond. The plume-like panicles are very attractive in the pleasure grounds and sunny shrub borders. The long-stemmed sprays are also valuable to use for tall vases. The Tamarisks are well-known seaside shrubs, this species being the most useful, flowering, as it does, during August, the most popular seaside holiday month of the year. The Tamarix species are among the easiest of hardy shrubs to propagate by cuttings. Cuttings twelve to eighteen inches in length, made of the ripened growths of the year, root readily if inserted on a border during November. To avoid the check of transplanting a year later—if it can be so arranged—insert the cuttings in the positions where the shrubs are to remain.

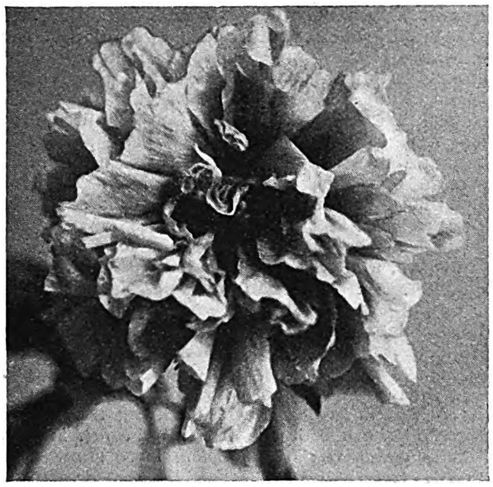

FIG. 61.—PAEONIA MOUTAN VAR. NISHIKI-NO-TSUYA.
(see p. 131.)

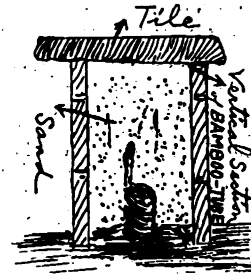

FIG. 62.—PROPAGATION OF PAEONIA MOUTAN.
(see p. 131).

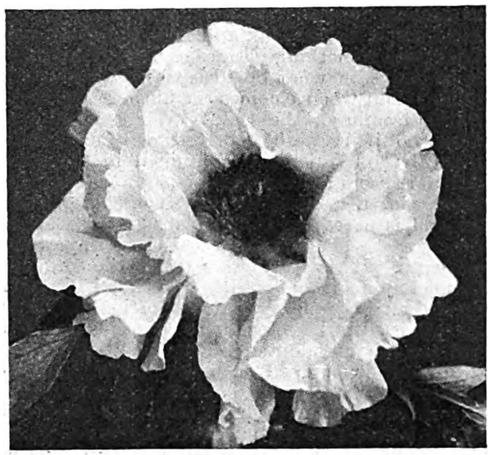

FIG. 63.—PAEONIA MOUTAN VAR. OBOROTSUKI.
(see p. 131.)

The Shrubby Pavia, Aesculus parviflora, is a very distinct and useful subject for shrubbery borders, and as a large specimen lawn bush. The average height is from nine feet to twelve feet, the diameter often more than this, as it produces suckers freely. The flowers are white, produced freely during August on slender, cylindrical panicles. Ripe fruits are very seldom produced in British gardens, but the free production of sucker growths provides a ready means of increase by division.

Rosa Wichuraiana is best known as one of the parents of a large number of the later-flowering, rambling and climbing Roses, including such popular favourites as American Pillar, Alberic Barbier and Lady Gay. Rosa Wichuraiana is, however, worthy of attention as a trailing shrub, producing clusters of white blossoms along the slender growths during late July and in August. It is useful to plant on sloping banks, and it is most attractive if allowed to trail over and hide old tree butts. Even when not in flower the glossy, dark-green foliage is attractive.

The Sorbaria group of Spiraeas, with their pinnate foliage and large panicles of feathery white blossoms is flowering freely. S. Aitchisoni nine feet to ten feet or more high; S. Lindleyana, an imposing tall shrub up to fifteen feet or more in height; S. arborea var. glabrata, one of Mr. E. H. Wilson's introductions from Hupeh and Szechuen, averaging eight feet to ten feet high; S. sorbifolia, some four feet high and dwarf in comparison with the foregoing; and S. stellipila, a Japanese Sorbaria, three feet to four feet high, with leaves very distinct to the touch as the undersides of the leaves is clothed with stellate hairs, are all showy subjects in the collection near the Pagoda.

Several of the true Spiraeas flower during July and August. The most useful to brighten the shrubbery borders during August include the dwarf S. japonica varieties, Anthony Waterer, carmine-red; Bumalda, carmine, and alba, white; the two white-flowered varieties of S. salicifolia—latifolia and paniculata—five feet high; and S. Menziesii var. triumphans, an upright growing shrub up to about six feet high, with close panicles of rich rose-coloured blossoms.

The two American Stewartias, S. Malachodendron and S. pentagyna, are flowering freely in sheltered beds of Ericaceous shrubs. These shrubs were far from happy, despite frequent watering, during the hot, dry weather of July, but the cooler conditions of the past ten days and good rains have wrought a speedy change in the appearance of the plants. Only the later flowers of S. malachodendron remain, but several plants of S. pentagyna are freely sprinkled with the attractive white blossoms, each three to three-and-a-half inches in diameter.

Another shrub which thrives best at Kew when surrounded with the Mediterranean Heath, three feet or more in height, to keep the ground cool and moist, is Eucryphia pinnatifolia. Specimens from four feet to fifteen feet high are flowering freely in various parts of the Gardens. The large, white flowers, with large tufts of stamens, suggest white Hypericum blooms, if such were possible. Layering and seeds provide ready means of increase, although for the first two or three years growth is comparatively slow. After this period, however, growth is very good, and the plants flower freely annually.

The numerous forms, or varieties, of Buddleia variabilis provide a wealth of colour during late July and August. This is appreciated as much, or more in comparison, in small gardens, than large, for Buddleia variabilis is becoming quite a common shrub in small town and suburban gardens, where it flowers surprisingly well under, ofttimes, far from ideal conditions.

Numerous hybrids or varieties of garden Clematises are flowering freely in the Duke's Garden and elsewhere. The most interesting group in the collection of Clematis, not far from the Victoria Gate, is C. rubro-marginata. This is a climber of slender growth, and deliciously fragrant, small, reddish-purple blossoms with white centres. It is a hybrid between C. flammula and C. viticella. *A. Osborn.*

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PROBLEMS OF PLANT LIFE*

VI.—Transpiration.

IN our recent study of the Significance of Wilting (p. 71) so many references were made to transpiration that requests have been received for further information about this problem of plant life in the light of recent research. In the old days everything was very simple and easily accounted for. It was then enough to state in general terms that the sap rose in a plant because the sun shone or the light fell on it. This caused evaporation, and to meet the need moisture was drawn up from the soil. In one respect this popular way of stating the case was true enough. In the words of one of our most recent authorities, "the direct source of the energy used in the suction of transpiring leaves is the radiant energy of the sun." But when we come to enquire how and why this is we soon discover either the profoundest ignorance or the most divergent opinions. In the view of one authority, transpiration is only an evil; by another it is regarded as an inestimable boon. What seemed, moreover, to be a purely mechanical process is now found to be dependent on many causes, while the ends which are served by transpiration vary considerably.

It may be laid down as a general law that transpiration is a physical necessity; that it is functionally as important to a plant as breathing is to animals. In some respects, indeed, the processes of breathing and transpiration are one and the same, so that it has been the habit to speak of the stomata found on the leaves of a plant as its lungs and breathing pores. The analogy is not perfect in every respect, but that is a point which need not be laboured here. If, however, transpiration is essential to the life of the plant, a knowledge of the process is obviously of great importance. It follows, too, that if it is a life-process it must be advantageous. Yet it has been stated that it is sometimes definitely injurious, which shows that the horticulturist ought to be well-informed on the subject. If transpiration is ever detrimental to a plant, what are the conditions, and how may they be controlled? Here is a subject which clearly merits the most careful attention of the teacher.

We may begin by stating an all-important fact, viz., that during the life-time of a plant large quantities of moisture are passed through its tissues, and discharged by the process known as transpiration or evaporation. The quantity will, obviously, vary with the size and nature of the plant, its length of life, the extent of the water supply, meteorological conditions, and other factors, all of which have to be studied carefully. The fact having been established, it follows that one enquires into the meaning. What, it has been asked, is the significance to the plant of this continuous stream of water passing through its organs? Is it enough to state that just as it is a law of physics that water will find its own level, so it is a physical necessity that plants should transpire, and that transpiration has no further significance? Or shall we say that just as breathing is a physical necessity to man, but is also beneficial, so transpiration also serves some important end in the economy of the plant? If so, we shall be led to enquire whether light, heat, atmosphere or other factors are necessary as well as water, and what bearing these may have on the one or the other. The *fact* is that plants transpire; the *problem* is to show why and how.

We must be content for the present to assume the presence of root-processes on the one hand for the extraction of water from the soil, and of stomata on the other for its transpiration. Into their various modifications we need not enter at this point, since they constitute problems by themselves. There are some who contend that transpiration is an evil. It is granted that under present conditions it is a necessary evil, inevitable and unavoidable, but an evil nevertheless. The case may be stated thus. Most plants are supplied with leaves by means of which they are fed. Depending largely on carbon dioxide they must keep open communication alike with the air on the one hand and the water supply on the other. But if the atmosphere is dry it will naturally tend to draw off the water from the leaves, and this process is known as transpiration. The drier the air the greater the transpiration, or the more severe the tax on the water supply. It follows that if the latter is limited the plant will ultimately wilt, lose its turgidity, cease to maintain the water current, and so eventually die for want of nutrition. The advocates of this theory state that to this cause we may trace a variety of modifications and adaptations in plant forms.

The whole of the case cannot, however, be stated so simply. So far from being an inevitable evil, transpiration may be shown to be one of the most necessary and useful of plant functions. It will be observed that we qualified the remark about the dependence of the plant on carbon dioxide. As man does not live by bread alone, so the Oak and Ash, the Rose and Briar need something besides carbon. That may be to the plant what bread is to man—the staff of life. But whence comes the blush of the Rose or the tannin of the Oak? What would the plant do if it were deprived of the various mineral salts which are contained in the soils and fertilisers? Experiment shows that the passage of a continuous stream of water from the soil is necessary if the plant is to secure a steady and sufficient supply of these important elements. It is just here that the organic chemist joins hands with the horticulturist. Careful analyses show what proportion of this or the other salt is necessary to vigorous growth, and the means adopted by the plant to secure the supply is summed up under the term transpiration. Since plants cannot take up solids all nutrients have to be in solution. The stomata of the leaves give off excessive moisture, while the salts held in solution are used up by the tissues.

This, however, is not the only benefit which the plant derives from the transpiration process. By pumping up water from the soil the leaves maintain the succulent plant in a state of rigidity or turgidity, and thus enable it to function properly. If we take by way of illustration the act of cross-fertilisation, we see at once that this will be seriously affected if the plant becomes flaccid. Maintain normal transpiration and you enable the organs to function.

There is, further, the effect which this process has upon the plant during the heat of the day, in modifying the effects of the sun's rays. A leaf which fails to transpire normally becomes hot, dry, and useless, whereas it has been found that the temperature of healthy leaves is only slightly above that of the surrounding air even when the plant is exposed to the full heat of the sun. This is a matter of great importance, and has much significance for those who grow plants in greenhouses and hothouses. It is not suggested that the foregoing considerations by any means exhaust the subject. It must, however, be concluded that so far from transpiration being an evil, it is of immense advantage to plant life, and deserves the most careful thought and study. *Hilderic Friend.*

THE DURATION OF CUT FLOWERS.

NOT the least of the demands made upon the present-day gardener is the continuous supply of cut flowers for the decoration of rooms and dinner tables, therefore the variability in the lasting properties of the material used for these purposes is of peculiar interest.

While some flowers, such as Heliotrope, for example, are so fugacious as to be scarcely serviceable, others, in particular Carnations, sometimes remain fresh for weeks under reasonably good conditions. The lasting properties are not necessarily uniform within certain groups or genera, for while the common Poppy lasts but a day or two under the best conditions, its congener, the Iceland Poppy, which appears to be of similar substance, lasts for many days. Among Irises, the bulbous section, including the Dutch, Spanish and English groups, have excellent lasting qualities, but the same cannot be stated of the varieties of I. germanica, so remarkable in the open border by reason of their handsome flowers of delicate texture and infinite variety of colour; yet the Japanese Irises, if cut while still in the bud stage, will unfold their petals perfectly and remain fresh for several days although their season of flowering is at the hottest period of the year. I. sibirica and its varieties, the larger-flowered I. aurea, I. spuria and I. ochroleuca also possess this property, and are particularly valuable for big decorating schemes because of their long stems.

But the conditions under which plants are grown, and their stage of development when cut, have a very great influence on their duration. Narcissi and Tulips, both forced and when grown under natural conditions, last for a very long time if gathered just before the bud opens, but fully expanded flowers last a relatively short time. Few flowers can surpass the Carnation in its duration, but, like all other flowers, its period of freshness after being cut is largely governed by the treatment it receives.

As regards summer border flowers, everyone knows that the hot, dry summer months hasten the maturation of plant growth, and this acceleration continues to some extent even after a flower is cut. It is therefore much more difficult to maintain freshness, and care should be taken that the flowers are placed in water immediately they are cut, to prevent loss of turgidity. Amongst the most satisfactory flowers for cutting in the summer months are the Gladioli, particularly the primulinus hybrids, which, by reason of their graceful stems and brilliantly coloured flowers, make excellent decorative material. If cut when the first flower begins to expand, and placed in water, the succeeding flowers open in rapid succession to the apical flower, maintaining perfect freshness for eight or ten days, and it is one of the very few flowers which will regain rigidity, even when slightly drooping, on being put into water.

Dahlias, although admirably adapted to many decorative schemes, are not very durable in water and, unfortunately, the singles, which provide such a wealth of decorative material, are less durable than the double sorts; the decorative varieties are also more resistant than the Cactus sorts, but as the season advances and nights become cooler, flowers of all sections become more durable.

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*Previous studies appeared in our issues of April 13 (p. 279-80), June 15 (p. 446-7), Vol. LXXXV, July 13, (p. 30), July 20 (p. 50), and July 27 (p. 71).

It is thus clear that the floral decorator has considerable choice of material for any scheme he may contemplate, while a knowledge of the general tendencies of various flowers, when cut, enables him to choose material to meet the time-needs of the scheme in question.

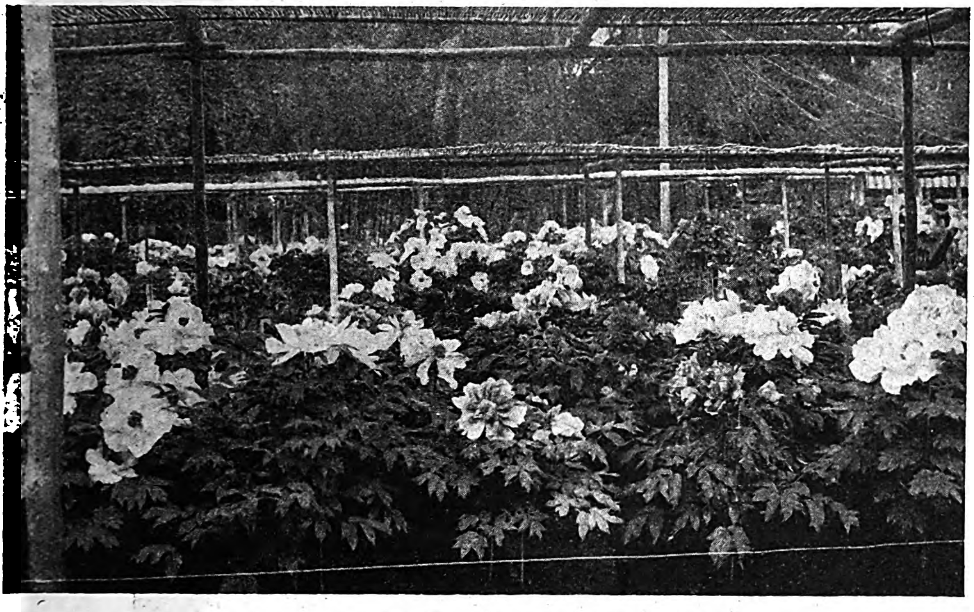

FIG. 64.—MR. JITARO NAGAO'S TREE PAEONY BEDS IN NORTHERN JAPAN.

But the exercise of a few precautions can contribute in a remarkable degree to the conservation of freshness in flowers after they are cut, particularly during dry and hot periods. During such periods loss of moisture from evaporation is very great, and flowers should only be cut in the early morning, when they are at their greatest turgescence. In the case of heavily-foliaged material it is also good practice to remove those leaves which are superfluous to decorative needs, and with large-stemmed flowers, particularly those of a woody nature, the cut should be made obliquely so as to offer a larger surface for the absorption of water. Finally, care should be taken to place them immediately into fresh water, and if a flower-room is available where the atmosphere can be kept almost at saturation point, it is a great advantage to allow the flowers to stand for an hour or two in such a room before use. It is also essential that flowers which have to be packed for long journeys should be subjected to these conditions before being packed. *W. Auton.*

TREE PAEONIES IN JAPAN.

FROM ancient times the Tree-Paeony has been called "the King of Flowers" in the East. The history of the Tree-Paeony is long and interesting, but it is not my intention to deal with it in this note. The Tree-Paeonies are much appreciated in gardens, or as pot plants, and widely cultivated from southern Japan to so far north as Hokkaido, where heavy protection is needed in winter. Yamamoto of Settsu province and Koaimura of Echigo province have enjoyed a hundred-year-old reputation for the culture of Paeonies and the raising of new varieties.

The extensive Tree-Paeony Garden (Fig. 64) at Sukagawa in northern Japan, is noted for its many aged and giant plants and numerous varieties. One hundred years old —and even older—plants freely produce their flowers annually (Fig. 65), and are not rare in the garden. The oldest plant is presumed to be one-hundred-and-eighty (or ninety) years old. The trunk is hollowed and one side is decayed, but it grows vigorously. The largest one is about ten feet in height and thirteen feet in width. The circumference of the trunk at nine inches from the ground is one foot eleven inches. The garden is open to the public by the generosity of Mr. Gentaro Yaginuma, the owner, whose life has been devoted to the cultivation and collection of varieties of Paeonia Moutan or "the Botan."

Mr. Sinzaemon Tanaka's work on the hybridisation of the Tree-Paeonies is much admired, and his name will be long remembered as that of a great raiser of Tree-Paeonies. Mr. Tanaka commenced raising varieties in 1894, after he learned the method from the *Rono Zasshi* (then a leading agricultural journal in Japan). Since then, after many difficulties and failures, he has raised nearly two-hundred-and-fifty varieties. The following are a few of the best he has raised:—Hakuo, Haku-Unryo, Nagoya-Jo, Hoo-Jo, Kanyo-Kiu, Kinpai and Godaishu. He is now eighty-one years old, but his enthusiasm is unabated (see p. 122); indeed, he works with undiminished energy and interest, raising and cultivating with his own hands. He is very tranquil regarding rewards—the work is his great interest.

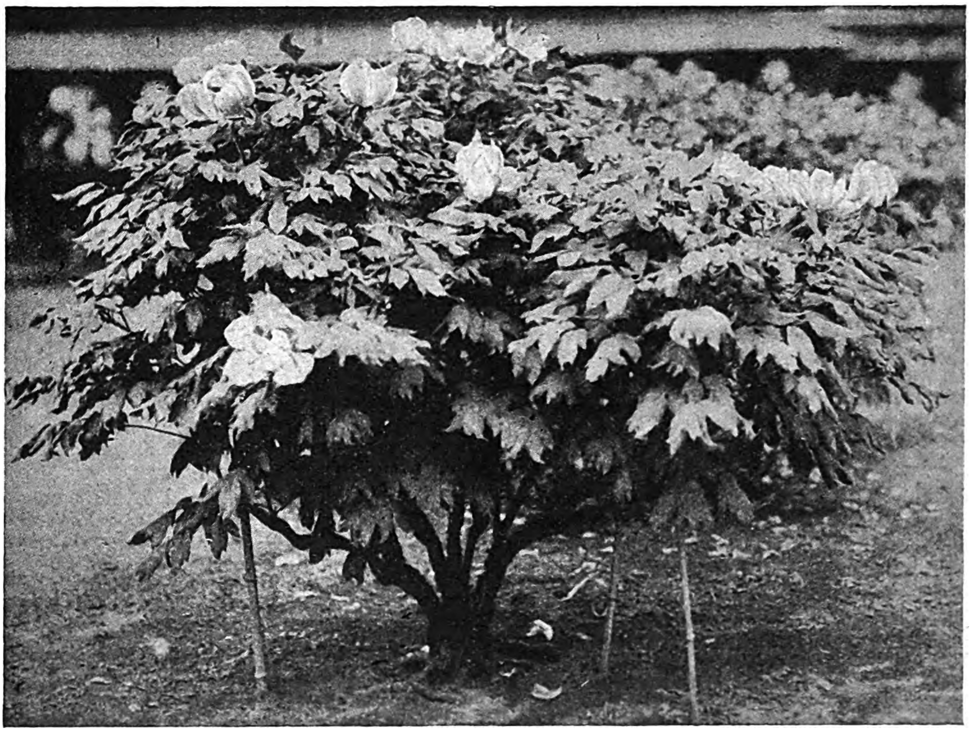

FIG. 65.—PAEONIA MOUTAN VAR. CHIGO-SAKURA.
A specimen one hundred years old in the garden of Mr. F. Yaginuma.

Tree-Paeonies like well-drained, loamy soil, enriched with well-decayed manure. Too compact soil should be avoided, since it retains water on the surface. Tree-Paeonies form and expand their flower buds very early in the year, so that autumn planting is preferable. They dislike disturbance, as we know by bitter experience when old plants are moved; they fail to grow in the year following, and their branches and trunks will often die back. Tree-Paeonies are not uniform in growth, therefore strong shoots should be shortened in autumn and they will then form two moderate branches and flowers the next year. Consequently, symmetrical growth is obtained. They are rather gross feeders, and one readily detects the difference between well-manured or semi-starved plants. When planting takes place, pulverised Rape-cake—used for Chrysanthemums, Azaleas, Morning Glories, dwarfed trees, and for nearly all the plants cultivated; it is much prized and widely used, and is far better than Bean-cake—is scattered over the surface of the ground. This should be applied in winter and just after the flowering period is finished. This manure damages the root fatally when placed in the soil instead of being scattered on the surface.

Seedling and herbaceous Paeony roots are used as stocks. The former has the advantage, producing larger flowers and causing faster growth, but has the disadvantage of forming suckers, while its roots are not suitable for pot culture, being too big. Those grafted on herbaceous Paeony roots are the best. In the Yamamoto district the former is used chiefly. Three- to four-year-old seedlings are used as stocks; these are headed down to one inch to one-and-a-half inch from the root; then a small notch is made on the side of a cross section for inserting the scion. One- or two-eyed scions, one-and-a-half-inch to two inches in height, are cut with a flat, sloping, slice-cut on the lower half. After the scion is inserted it should be very tightly bound with Ramie, Hemp, or straw, and covered with oil-paper. Then a Chusan Palm rope is wrapped firmly round the point of junction. The season for grafting is from September 1 to early in October. The grafted plants are placed in a nursery bed and enclosed by a Bamboo tube as shown (Fig. 62). The sand nearly fills the Bamboo tube and protects the graft from drying, besides retaining warmth. A piece of tile is also put on the top to afford protection from rain. The tile is taken away when spring comes, but the Bamboo tube is left in place until the young growth has developed for one foot or so. Sometimes the grafted plant is covered with a mound of soil instead of a Bamboo tube; this method is freely practised. The flower bud formed in the following spring should be cut off, and the plant will attain a height of about one foot to one-and-a-half foot by the autumn.

The methods of seed-sowing, crossing and culture are not much different from those practised in connection with common shrubs.

The following are the best Japanese varieties of Paeonia Moutan:—Teikwan, vivid crimson, double; Fujisome-Koromo (Fig. 59), dark purplish crimson, fading towards the tip, very large, semi-double; Hinotsukasa, brilliant dark crimson, very fine, double; Nishiki-no-Tsuya (Fig. 61), crimson, with dark, bright crimson centre, highly raised petals, double; Tamasudare, snowy-white, double, one of the best whites; Gunpo-Den, of a colour difficult to describe, raised petals, double, the best in purple shades; Oborotsuki (Fig. 63) white, with pinkish-purple centre, large, semi-double; Kokuho, very dark purplish-crimson, double; Momoyama, soft pink, curled petals, double; Sin-Kagura, dark crimson, with raised petals, very double and one of the largest flowers; Konyo-Kiu, yellowish, double; Tsukumo-Shishi, lovely peach-colour, narrow petals, double; Hinode-no-Sekai, fine pure crimson, one of the loveliest in colour, most floriferous, and the best for pot culture.

The case-weaver often damages the buds in early autumn. Fallen petals should be collected, as they cause disease when they decay on the branches and stems.

Tree-Paeonies force well in a greenhouse and there is much demand for those brought into flower in January. *K. Yashiroda, Japan.*

EXPERIMENTS ON THE CAUSE OF "POTATO SICKNESS."

FIELD observations carried out in south Lincolnshire since 1925 have shown that the two organisms Corticium (Rhizoctonia) Solani—a fungus, and the eelworm, Heterodera Schachtii, are invariably present on Potato plants exhibiting symptoms of the disease known to growers as "Potato Sickness."

It may be of interest to record here that although the disease is usually associated with fields which have been frequently cropped with Potatos—hence the name "Potato Sickness"—a bad case of similar crop failure came under observation in 1926, when a field of "old" pasture was freshly ploughed up (Fig. 66).*

In general, the whole of these field observations have indicated that Potato Sickness is a similar phenomenon to those of Clover Sickness and Greenhouse Soil Sickness, and is caused by plant parasites rather than starvation, or any accumulation of toxins in the soil.

In 1928, working in conjunction with Mr. E. Edwards—then Entomologist at Kirton Agricultural Institute—a series of pot experiments were set up in order to obtain some definite evidence as to the parts played by the fungus and the eelworm in causing this disease.

Soil was obtained from a Potato field of very bad record for "sickness" in the Boston area—a field where Potatos had been grown year after year for the past eighteen years, and the following series of pots were made up; five ten-inch flower pots being finally used in each series.

Series.		Inoculations.*
1.	Soil Sterilised†	Nil.
2.	,, ,,	Inoculated with the fungus, Corticium Solani.
3.	,, ,,	Inoculated with about 2,500 cysts of the eelworm, Heterodera Schachtii.
4.	,, ,,	Inoculated with the fungus and the eelworm (about 2,500 cysts).
5.	Unsterilised soil	Nil.

A small quantity of a mixture of inorganic artificial manure composed of three-parts sulphate of ammonia, four parts of superphosphate, and two parts of sulphate of potash, was applied in equal amount to each of the pots, and they were planted with a very susceptible variety of Potato—Eclipse, the "seed" being previously immersed in an 0·1 per cent. mercuric chloride solution for one-and-a-half hour to ensure the exclusion of Corticium Solani.

The pots were plunged in the soil of an isolated garden, and apart from occasional waterings were kept under field conditions.

The outcome of the experiments in 1928 was not altogether satisfactory; the reduction in growth of the plants receiving double inoculation (Series 4) being less than that of those grown in the untreated soil (Series 5), and there was little difference between the sterilised (Series 1) and those inoculated with Corticium Solani (Series 2).

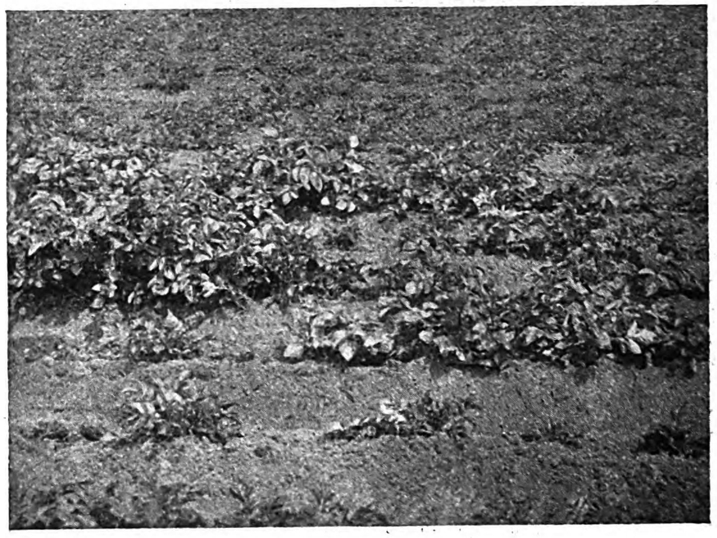

FIG. 66.—POTATO SICKNESS: EDGE OF A BAD PATCH IN FOREGROUND.

These results, together with a detailed account of the symptons of the disease were published by Mr. E. Edwards, since leaving Kirton, in the *Journal* of the Ministry of Agriculture, June, 1929 (q.v.). Following the experience of 1928, the plants were taken out of the pots and the soil replaced back in each pot. Very great care was taken to avoid any contamination of the soil of one series by that of another.

The pots were kept plunged in the same site outdoors during the following winter, 1928-29, and in the middle of March, 1929, additional inoculations of Corticium Solani were given to the soil of Series 2 and 4, while further inoculations of approximately equal numbers of eelworm cysts were given to Series 3 and 4.

The pots were again planted with "steeped seed" of Eclipse Potatos on April 15. No manure was applied to the soil.

The season was marked by its low temperature and lack of growing weather; conditions which field observations have shown to favour Potato Sickness.

The effect of the inoculations showed up well (Fig. 67), and throughout the growing period Series 1 showed a great increase in growth over all the others.

The "eelworm" Series 3, was better than Series 2, 4 and 5, at the commencement, but its growth gradually fell back until there was little difference between these Series at the end of May. The third week in June, the rate of growth of Series 3 was negligible, and finally, with one exception, the foliage turned completely yellow by the end of the first week in July, and within a few more days was dead.

The "fungus" Series 2, was at first much retarded, but tended to pick up towards the end of June, and then in great contrast to the "eelworm" Series 3, continued to grow and retain a perfectly healthy colour in the second week of July, despite the fact that the Corticium stage of the fungus was abundant at the base of the stems. (Fig. 70).

The "double inoculation" Series 4 was outstanding. It entirely failed to grow away and the little growth which was made turned yellow, wilted, and died towards the end of June. The mycelium of Rhizoctonia was much in evidence on the soil around the stems.

The "unsterilised" Series 5 showed a check in the very early stages—similar to that of the "fungus" Series 2, but it did not turn yellow and die away so early as the "eelworm" Series 3. The yellow coloration and death was quite eight or nine days later—the Corticium stage of the fungus being plentiful at the foot of the stems.

On the whole, its growth appeared to be slightly better than the "eelworm" Series 3, but markedly inferior to the "fungus" Series 2.

With such a small quantity of material available it was not possible to obtain any precise data to show the relative effects of the different inoculations on the growth rates.

In July the tops were cut off at ground level and the dry weights determined—by that time the "sterilised" Series 1 was becoming pot-bound. Nevertheless, the dry weights are interesting.

	Mean dry weight of four plants (growth above ground.)
"Sterilised" Series 1 ...	12·46 gms. ± 0·51
"Fungus" Series 2 ...	4·6 gms. ± 0·55
"Eelworm" Series 3 ...	4·45 gms. ± 0·92
"Double Inoculation" Series 4	1·58 gms. ± 0·16
"Unsterilised" Series 5	3·58 gms. ± 0·54

An estimation of the leaf area of an average plant from each series was made (using the "squared paper—proportional weight" method).

	Leaf Area.
"Sterilised" Series 1	1846
"Fungus" Series 2	646
"Eelworm" Series 3	450
"Double Inoculation" Series 4 ...	121
"Unsterilised" Series 5	327

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* Only the fungus was observed in this case—not the eelworm. Similar crop failure occurred on control plots in bad areas of this field the following year.

* All the inoculations were carried out at the time of planting the tubers. The fungus was obtained the previous year from a diseased Potato stem, and had since been grown on Potato-mush agar. The inoculation was made by cutting out "squares" of fungus and agar, and placing them in the soil.

† Sterilised in an autoclave.

Summary.

Pots of soil obtained from Potato Sick land, and sterilised, were heavily inoculated in 1928 and 1929 with Corticium Solani and Heterodera Schachtii. They were planted each year with "steeped seed" of Eclipse Potatos and kept outdoors.

The Potato plants in 1929 failed to make much growth and died at the end of June showing identical symptoms to those of extreme cases of "Potato Sickness Disease," whereas a series of uninoculated controls (same soil) growing side by side made good growth and were quite normal.

Similarly two series, one inoculated with the eelworm only, and another solely with the fungus, failed to make as good growth as that of the control. In the case of the "eelworm" series the haulm turned yellow and died at the end of the first fortnight in July. The "fungus" series was a natural colour at that time. *W. F. Cheal, D.I.C., Kirton Agricultural Institute.*

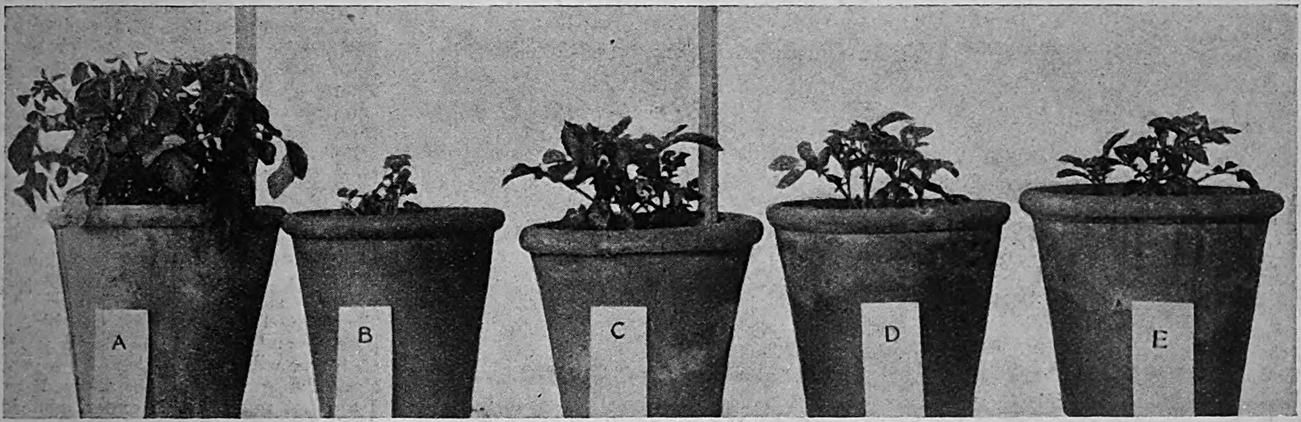

FIG. 67.—POTATO SICKNESS: RESULT OF INOCULATIONS IN 1929.

A. "Sterilised" Series 1; B. "Double Inoculation" Series 4; C. "Fungus" Series 2; D. "Unsterilised" Series 5; E. "Eelworm" Series 3.

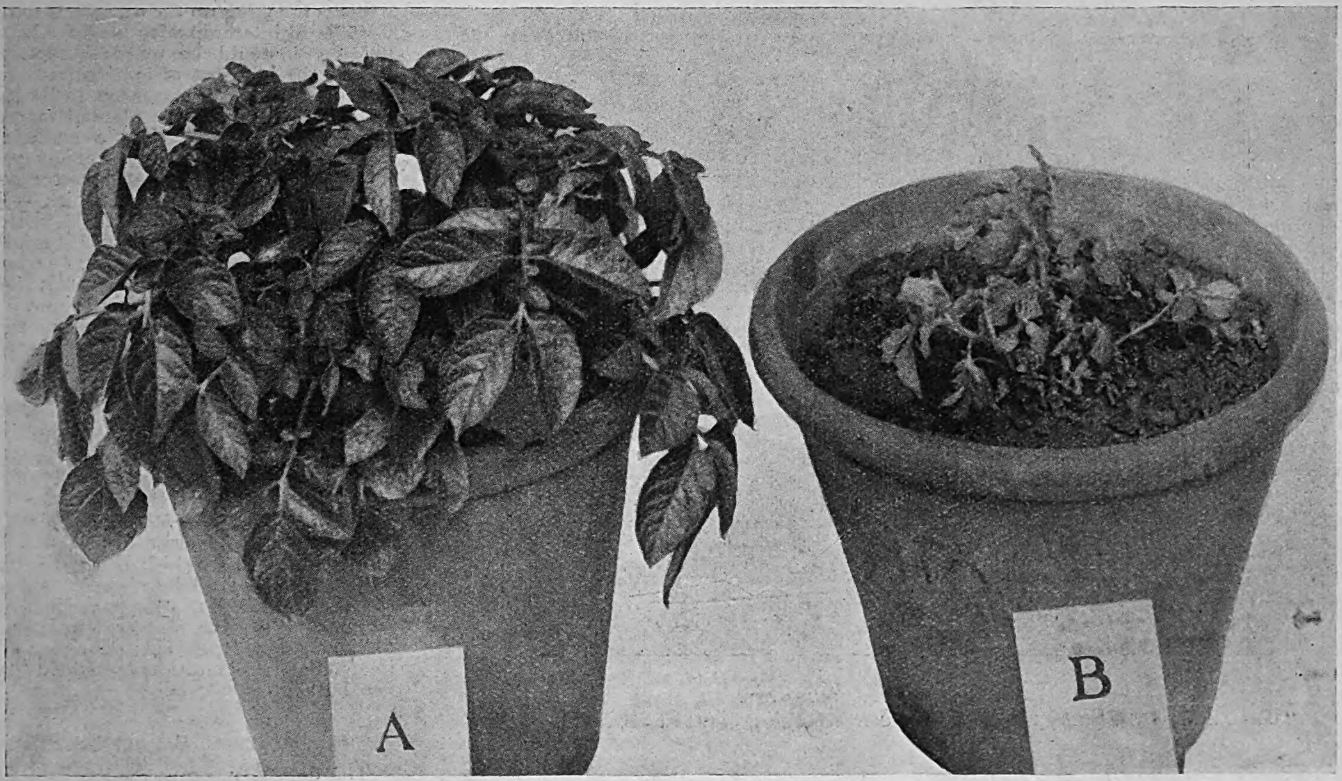

FIG. 68.—POTATO SICKNESS: RESULT OF INOCULATIONS IN 1929.

A. "Sterilised" Series 1; B. "Double Inoculation" Series 4.

MARKET FRUIT GARDEN.

Fruit trees and bushes withstood the long drought remarkably well. They began to show signs of suffering during July, which had less than half the average rainfall; but unsettled conditions arrived at the end of the month just in time to prevent serious harm. The only troubles which can be attributed to the drought are a considerable dropping of Plums and lack of size in some kinds of early Apples. The later varieties are particularly big for their present stage of development. Why the trees withstood the dry conditions so much better than they did last year can only be attributed to the fact that they had been much more heavily manured, particularly with nitrogenous fertilisers. They have made a great deal of growth, and would probably have become too rank had it been a wet season.

Black Currants.

The crop of Black Currants proved to be very heavy. The best plantations yielded two tons per acre, and over my total area of twelve acres I shall average more than 30 cwts. If frost had not taken a toll of the bloom of Boskoop Giant and Baldwin, the crop would have been still heavier. The fine weather was very favourable for picking, but trade was too bad to enable one to feel any enthusiasm about the result. Prices started at 8d. per lb. but very rapidly fell until the lowest point was reached at 2½d. At the time of writing, there is a slight rise, so some of the remaining Baldwins may raise the average; but I do not think it will amount to more than 3½d. or 4d. In my opinion Black Currants cannot be grown to sell at such prices. The bushes nowadays have a short life of usefulness, need generous manuring, and must be well cultivated. In addition, it is practically essential to spray in winter with tar-distillate to prevent aphis; and we are advised to spray also with lime-sulphur to control bud mite. Finally, it is an expensive crop to pick, and suitable non-returnable packages, which are now almost essential, are not bought for nothing.

If I were a specialist in soft fruits I should not despair of the crop. Such growers, by picking carefully and marketing in small packages, can generally realise better prices. The large grower, on the other hand, has to employ a big gang of indifferent pickers in order to get through the work, and can hope for nothing better than a sample fit for the jam factory. Really, I think that now is the time to grub old plantations and plant new ones. By the time the latter come into bearing the situation may have changed. For one thing, some of the continental growers will presumably have become tired of sending over fruit to sell at prices which cannot pay them; and a good many English growers will undoubtedly have given up the crop. In my own case, Black Currants are merely an intercrop between young fruit trees, and I have already started to grub half the acreage. The trees, which are of far more importance to me, will be better without the competition of the bushes. I shall grass down the land, and thus save the cost of cultivation. This will throw the trees into bearing and render them healthier, as it always does in my conditions. In one case, the Currants are under young trees of Cox's Orange Pippin, which are just going through the stage of cankering, which I always have to expect with this variety. Grassing down will assist greatly in overcoming this trouble; and the crop of Apples will be much more valuable than that of the Black Currants.

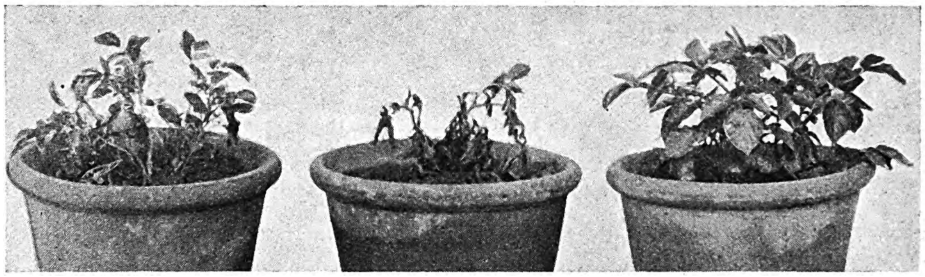

FIG. 69.—POTATO SICKNESS.
Left, "Unsterilised" Series 5; Centre, "Eelworm" Series 3; Right, "Fungus" Series 2.

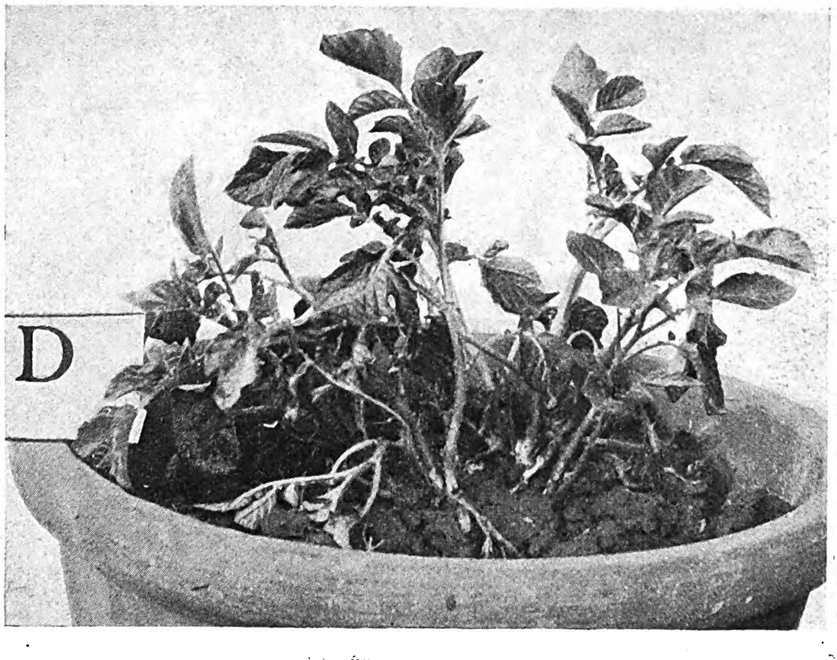

FIG. 70.—POTATO SICKNESS.
"Unsterilised" Series 5 (from Fig. 69), showing Corticium at base of stems; July, 1929.

Apples.

Plums and Apples are very late in ripening By August Bank Holiday I am generally busy with both. This year I had no dessert Apples ready for the seaside markets, and Rivers' Early Prolific Plums were only just beginning to colour. This was really fortunate, because the thinning of Apples, interrupted by soft fruit picking, was not quite finished. The only Apples sold during July were Early Victoria, the largest of which realised 5s. 6d. to 7s. 6d. per half-bushel, which was very satisfactory. It is to be hoped that this marks the beginning of a season of good trade in Apples. In my opinion, this is the most profitable crop, although many growers would not agree with me. It is certainly the most pleasant to deal with. Unlike soft fruits, Apples do not lose condition if kept for a few days, and they lend themselves to a high degree of selection and grading.

Last winter several batches of worn-out Apple trees were severely headed down, the main branches being cut back hard to a lateral branch, where there was one, or to a spur. At the same time the spurs were thinned out. The success of this treatment in producing larger fruits is most marked. It is particularly striking in the case of some very weak trees of Lord Grosvenor and James Grieve. Not only is the crop worth much more than before, but the trees are carrying fine foliage and making plenty of growth. This treatment is probably called for at intervals with all varieties of the early Codlin type, which have a tendency to produce an over-crop of small fruits as they age. The work of thinning the crop is reduced if half the spurs are cut off, and the new laterals produced by this pruning can be used to make fresh spurs to replace older ones as time goes on. Manuring must be done as a further help towards rejuvenation.

Planting in Grass.

The success of nitrogenous manuring of trees in grass is so marked that I am going to try planting in grass next winter. This may be thought to be a mad idea, because it has been shown that nothing is more injurious to a young tree than allowing grass to grow close up to the stem. There are hundreds of examples about the country of failures from this cause. But all these are in the absence of proper manuring. I believe that, with the use of fertilisers right from the start, trees will grow away perfectly well in grass. My reason for trying this plan is as follows: The land to be planted is already occupied by trees in grass which will have to be grubbed. It is impossible to get out all the old roots. There are always enough left in to prevent subsoiling or even deep ploughing. Therefore I shall disturb the turf as little as possible and plant in it. Possibly a space round each tree will be kept clean for a year, but after that the grass will be allowed to encroach. I am not making this experiment in the dark. I know one excellent grower who has cut down woodland, without grubbing the roots, and has dotted fruit trees about whereever possible between the stumps; and they are doing very well. In this case the grass is kept down by sheep, and any rough stuff remaining is burnt off in early spring. I have also examples on my own place of young trees planted in the grass orchards to fill gaps. These are going ahead well now that the manuring is right.

If such an experiment succeeds it opens up great possibilities. It means that one could buy cheap pasture land and plant it right away without breaking up the grass. It would not be possible to intercrop with bush fruits, of course, but there would be ample compensation for this in the low cost of cultivation. There are, of course, plenty of examples, in Kent and elsewhere, of fine orchards planted in grass; but these have generally had a space cultivated round each tree for a good many years. My point is that manuring can take the place of all cultivation, the only use of which is to supply nitrogen. The old idea that cultivation is necessary to conserve moisture is refuted by the appearance of properly manured grass orchards in a season such as this. I have not the slightest doubt that, where the grass is mown annually and used as a mulch, there is more moisture underneath than there is in cultivated land.

Dwarf Trees.

Going to the other extreme, I am planning a small plantation of Apples, mainly Cox's Orange Pippin, on Paradise No. IX. In this case no experimental risks will be run. The land is being summer fallowed to clean it, and it will be kept under clean cultivation. The idea of the dwarf trees which this stock produces is very attractive. They come into bearing about three years after planting, and carry fruits of very fine size and quality. This is obviously the stock for temporary filler trees in commercial plantations, provided that rabbits can be kept out.

Bacterial Canker of Plums.

The disease recently named bacterial canker of Plums and Cherries is very troublesome this season. I have it in the familiar "shothole" form on the leaves of Rivers' Early Prolific Plums, which will probably be almost entirely defoliated. The disease is also the cause of much dead wood in Plum plantations. The affected branches can be detected now by the yellowing and wilting of the leaves. A neighbour has the disease badly among Morello Cherries grown in bush form. He has cut out the affected wood several times this season, but now a good many of the trees are dying right out. *Market Grower.*

REMARKS ON THE CONDITIONS OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

SCOTLAND, N.

Sutherlandshire. After the very dry spring it is remarkable to find the crops looking so well. Reports of the crops in this district are almost identical with those of Dunrobin, where, with the exception of Apples, fruit crops promise well. Pear blossom set freely, as did all varieties of Plums and Cherries. Gooseberries, Raspberries, Loganberries, Black and Red Currants, together with the Veitchberry, show excellent crops, although the last-named does not ripen its fruits too well here in the north. Strawberries flowered well and promise a very heavy crop, the latest variety we grow, Elton Pine, was just passing out of flower at the time of this report, July 6. The soil here is of a light, sandy texture overlying a bed of pure sand. *W. F. Game, Dunrobin Castle Gardens, Golspie.*

SCOTLAND, S.E.

Roxburghshire.—The dry weather acted a a severe check on fruit crops in general. Damsons are a very heavy crop on old trees, and the fruits are likely to be of average size. Strawberries failed to swell properly owing to the drought. The soil here is heavy in patches, with some of a gravelly nature. *Alexander Black, Ancrum House Gardens, Ancrum.*

SCOTLAND, E.

Aberdeenshire.—All crops are more encouraging than last season. Fire blight is rather widespread on both wall and bush Apple trees. The weather in January and February was very severe, with the result that young trees received a severe check, and a few of these are now showing signs of canker. Pears and most stone fruits, unless protected when in flower, are unsatisfactory in this district. *Andrew McLeod, Cluny Castle, Monymusk.*

—— All small fruits are very good and much above the average, but Apples are very bad; the wall trees are carrying fair crops, but bush and standard trees are a complete failure. The soil here is of a light, peaty nature over a very hard pan. *William Smith, Dunecht Gardens, Aberdeen.*

Banffshire.—Plums suffered very badly from late frosts and unfavourable weather when they were in bloom, while Pears are never a dependable crop in this district. The Strawberry plants suffered badly during the winter, when the severe frosts almost denuded most of the plants of their foliage, but they have borne wonderful crops, although still weakly in foliage. *Archibald Cathie, Aberlour House Gardens, Aberlour.*

Fifeshire.—The fruit crops in general are looking well. Small fruits especially are a heavy crop, and Strawberries are a better crop than last season. Apples, Pears and Plums in the gardens here are suffering from last season's excessive flowering. *William Grieve, Balfour Gardens, Markinch.*

—— Small fruits in general are plentiful, but the crops on the trees are under the average, owing to frosts at flowering time. In this district the soil is of a light nature with a sandy subsoil. *Patrick Hunt, Falkland Palace Gardens, Falkland.*

Forfarshire.—The fruit trees and bushes suffered severely from the heavy spring frosts, and owing to this the crops are on the light side. Black Currants and Strawberries are an average crop, but Red Currants and Gooseberries are very patchy. Gooseberry mildew is not much in evidence so far; it is usually held in check here by applications of fine lime dusted over the bushes when damp; we find this is as good a remedy as any, and very easily applied. Blackberries were badly damaged with frost, most of the fruiting wood being absolutely killed. Aphis is very scarce so far. *J. B. Peffers, Panmure Gardens, Carnoustie.*

Midlothian.—The reliable varieties of Apples are bearing fine, clean crops, but special mention should be made of the old Lord Grosvenor trees, which are practically overladen with fruits; the " set " of four fruits to each spur is numerous; but five and even six fruits per spur were noted; so that a good deal of thinning will require to be done. A comparatively young Apricot tree on a south wall is carrying a very fine crop of good-sized fruits, and it should be stated that this tree, so far, has never failed to supply fruits each year. An old Peach tree which, although it does not cover a very large wall space, is quite healthy, and is carrying a fair crop of fruits, Numerous Cherry fruits have dropped, no doubt owing to the prolonged spell of very dry weather throughout May and June. Among the varieties of Strawberries, The Duke and Sir Joseph Paxton are vigorous and very healthy, while the two-year-old plants of the last-named are also fruiting well. *David Armstrong, The Drum Gardens, Gilmerton.*

Perthshire.—Apples are an average crop and promise well, but Pears were spoiled, during the flowering period, by late frosts. Small fruits are good, Black Currants exceptionally so, and Strawberries are a moderate crop. The soil here is a light loam over a gravelly subsoil. *William Taylor, Meikleour Gardens, Meikleour.*

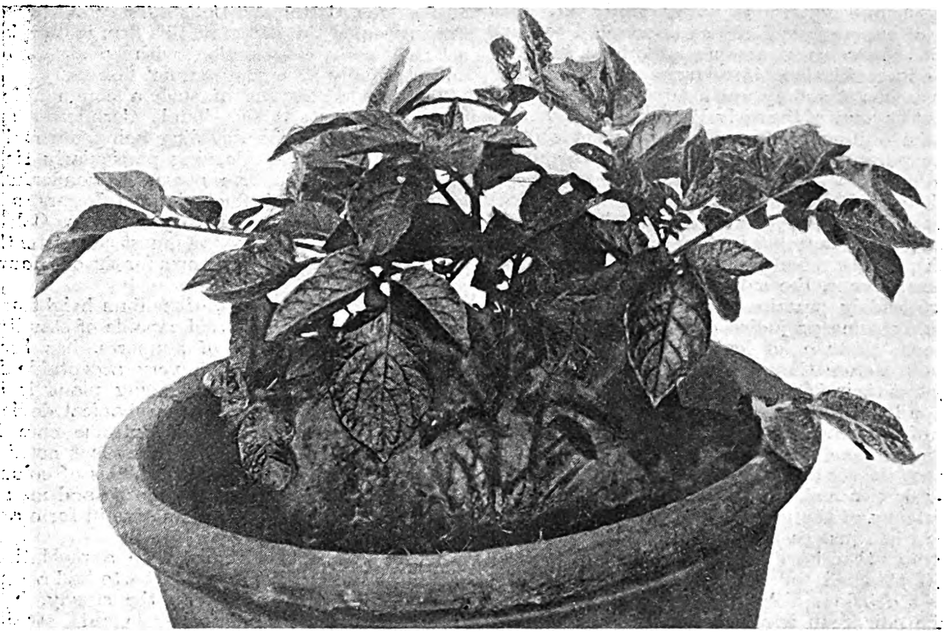

FIG. 71.—POTATO SICKNESS.

" Fungus " Series 2 (from Fig. 69) showing Corticium at the base of the stems.

SCOTLAND, W.

Argyllshire.—Owing to the late frosts, a considerable amount of damage was done to the fruit blossoms generally, and especially Apples and Pears. The soil in this district is very wet and heavy. *E. Ferguson, Appin House Gardens, Appin.*

Buteshire.—The cold weather during the late spring interfered with the setting of the later-flowering fruits, such as Plums, Pears and Apples, while bush fruits seem to have escaped the cold winds and are very good for the season. Strawberries, owing to disease, seem to be getting worse every year; some of the plants are quite good while others are dwindling away. The soil is a heavy loam on marl rock and remains very wet and cold. *John J. Davidson, Ardencraig Gardens, Rothesay.*

Dumbartonshire.—All small fruits have produced good crops. Strawberries, which appeared severely affected by the severe winter, being in some cases almost completely defoliated, made a wonderful recovery. Fruit trees generally have been more than usually free from attacks by the caterpillars of the Winter and March moths, doubtless also owing to the severe winter. For the second season in succession, Apple trees are carrying good crops. Pears and Plums are more or less poor. The soil here is of a peaty nature and shallow in places, overlying rock. *F. A. Bush, Arddarroch Gardens, Garelochhead.*

Dumfriesshire.—Small fruit crops are over the average, especially Black Currants and Gooseberries, but in some gardens the latter are badly affected with American blight. Strawberries are a good crop and the fruits are of good flavour, although not so large as they should be. Apple trees blossomed freely but the fruits did not set well. Plums are very good in quality and the crop an average one. Cherries looked fairly well for a time, but many of them dropped. The soil here is a light, sandy loam. *James McDonald, Muirhousehead, Lockerbie.*

ENGLAND, N.E.

Durham.—All fruit trees promised good crops in early spring, but Pears and Plums did not set well, as there was a long spell of cold, north-east winds when they were in full flower. Some varieties of Apples are carrying very good crops, notably Lane's Prince Albert, Bramley's Seedling, Allington Pippin and small trees of Lord Lambourne. Strawberries were an average crop but the fruits were very small. Gooseberries and Black and Red Currants have carried heavy crops, the fruits being large and clean. Small fruits ripened much earlier this year than usual. The soil here is of a very heavy nature on a clay subsoil. *J. H. Yarrow, Wynyard Park Gardens, Stockton-on-Tees.*

Northumberlandshire.—The late spring and frosts at night until well into April, had the effect of retarding the flowering of fruit trees, with the result that there was a good set of fruits of Plums, Apples and small fruits, although the continued drought affected the Strawberry crop. Blackberries, Gooseberries, Plums and Apples are excellent and the last two will require to be well thinned. Heavy rain on July 5 (1·23 inch) benefited all crops considerably. *J. Winder, Howden Dene Gardens, Corbridge-on-Tyne.*

Yorkshire.—The fruits in general are very satisfactory, bush fruits especially, Black Currants and Gooseberries bearing very good crops. Strawberries also are a very good crop, thanks to early mulching. Pears are a failure, although they blossomed well, but the flowers were too early. Bramley's Seedling is again one of the best Apples, while the varieties Ribston Pippin, Edward VII and Newton Wonder are fairly good. The soil in these gardens is a thin loam, resting on chalk, and the gardens are situated ninety feet above sea-level. *J. Turton, Sowerby House Gardens, Bridlington.*

(*To be continued*).

VEGETABLE GARDEN.

MAIZE.

It is said that the cultivation of Maize—Zea Mays—as a food plant can be traced back to the time of Homer, and its importance as a source of food for man's sustenance is probably second only to that of Rice. It would be without interest to consider here the numerous purposes to which this most valuable plant is put, when in a dried state, in tropical and sub-tropical regions, but it may be noted that so long as sixty years ago its possibility as a cereal crop in this country was discussed and it was then considered that by selection and acclimatisation a strain could be produced which would ripen grain in our climate and become a standard crop.

This hope does not seem to have materialised, but at about the same time it was sought to popularise the manner of eating Maize, so common in the United States of America, as Green Corn, and there can be little doubt that this led to a vast improvement in varieties suitable for this purpose under our climatic conditions.

The addition of a table vegetable of this delicious and nutritious nature and yet, for want of experience of the sorts adapted to our climate, so strangely unappreciated here, seemed of no inconsiderable importance, the more so as its season of supply was autumn, reproducing the lost flavours of the early Peas and Asparagus. But the ordinary yellow Maize was not suited to the purpose and, apart from early ripening, other conditions had to be fulfilled before it could hold its own as a popular vegetable.

But although there is now no lack of good varieties very suitable for our English climate, which produce medium-sized cobs of sweet and delicate flavour, the cultivation of the plant is not so widely practised as its merits deserve. Probably some prejudice exists because of the common mistake of gathering and cooking the cobs before they are sufficiently developed to perfect their flavour; on the other hand, if left too long, that succulent tenderness reminiscent of Asparagus has departed. Admittedly, it requires some judgment to ascertain the exact time to take the ears as Green Corn for the table; a day or two makes considerable change in the consistency of the grain. The cobs are at their prime when just passing out of the milky state; the grains then have firmness but not hardness, and if steamed for fifteen or twenty minutes make a delicious dish. But although this may be the epicurean way of serving green Maize, it is not the only way; all the uses made of Peas for soups and stews are common to it, and in a riper stage the ears may be roasted and served like Yams or Potatos. In America and the continent of Europe the immature cobs are used instead of Gherkins, for pickling.

With the dwarf-growing and quickly-maturing varieties available to-day the area of possible cultivation is a very extended one. In the southern counties supplies may be available from the end of July onwards, and in the midlands from early August; farther north, cropping may be less certain, except in favoured localities, but it would be interesting to know from readers of *The Gardeners' Chronicle* how far north the plant has been successfully cropped. Under favourable conditions in the south it is possible to sow out-of-doors at the end of April and gather serviceable cobs by the beginning of August, but it is generally wise to raise plants in gentle heat during April and plant out so soon as practicable in May, and in this direction my experience is that considerable advantage accrues from sowing the seeds singly in three-inch pots rather than in boxes; the plants then receive much less check than if transplanted from boxes, and if inclement weather conditions prevail when they should be planted out it is not difficult to move them into slightly larger pots and keep them growing until it is practicable to plant out.

It may be noted, however, that the plant suffers more from cold winds than from morning frosts, and considerable protection can be provided for plants raised indoors, by planting between rows of early Peas, which give protection in the early stage, but are removed and leave the Maize exposed when warmer weather is assured. The risk of young plants suffering in early spring is common to other vegetable crops, and a little protection obviates this.

It must also be borne in mind that the plant luxuriates in the rich, alluvial valleys of tropical countries and therefore loves heat and moisture; the heat naturally depends on the season, but moisture can be largely provided by previous preparation, and on sandy soils of low water-holding capacity, it is good practice to plant in shallow trenches liberally supplied with organic manure. These trenches retain the moisture from casual showers, facilitate artificial watering when necessary, and may be gradually filled in later in the season. This attention is no greater than that given to Peas and other vegetable crops, and is well repaid in the assurance of the supply of a highly nutritious table delicacy. *W. Auton.*

NURSERY NOTES.

MESSRS. JAMES CARTER AND CO.

A pleasant hour or so spent in the grounds of Messrs. Jas. Carter and Co.'s nursery at Raynes Park revealed the fact that this firm is carrying on the work of selection with great vigour and especially so among annual flowers.

The selected strains of such a common but popular subject as the double Cornflower are remarkably fine, the doubling being unusually good and the blue colouring particularly rich. In Calendulas, this firm possesses wonderfully brilliant strains with finely-formed flowers, and this is of special interest to growers as Calendulas are now among the most consistently popular of annual flowers grown for the cut flower market.

A strain of Salpiglossis, of medium height and branching habit, sturdy and capable of standing erect, without the aid of supports, has been evolved and should prove very acceptable in these days when a labour-saving plant is as desirable as a labour-saving mechanical device.

Nemesias give evidence of extreme care in selection as regards habit, and they lack nothing in respect of brilliant and soft shades of colour. The Stocks are very fine, the crimson and mauve varieties being unusually attractive in form and colour.

The branching Larkspurs were a revelation, and although the writer has hitherto had a very low regard for these flowers, the sturdy, free-branching and exquisitely-coloured strains at Raynes Park entirely altered the point of view and created a "most favourable impression," together with a determination to grow these flowers in the future. Viscaria Loyalty, and the splendid heads of the large Hyacinth-flowered Candytufts were arrestingly beautiful and of the latter we have never seen a finer strain.

Although they are not annual flowers, the Antirrhinum permit no one to pass them without respect, while most visitors are filled with admiration for such fine sorts as Carter's strain of Nelrose—a trifle dwarfer and deeper in colour than the original form; Beacon, Cottage Maid, Queen of the North, His Excellency, Carmine King, Victory, Prima Donna—a lovely fawn pink; Golden Monarch, Sparkler, Fiery Bell and Scarlet Flame. All these were represented by goodly breadths, thus displaying their good qualities in convincing fashion to those who desire Antirrhinums for any garden purpose whatever.

Quite naturally, the firm that holds an unique historical record in regard to Sweet Peas, and—in the person of Mr. Harold Beale—is supplying the President of the National Sweet Pea Society for the current year, devotes considerable attention to the most popular of all hardy annual flowers. The tail end of a long spell of hot weather was not the best time to inspect Sweet Peas, nevertheless the extensive trials at Raynes Park were worth inspection because they are well grown and the outdoor as well as indoor plants carried abundance of excellent flowers. All the popular varieties and many novelties are grown extensively and several new seedlings added interest to the Sweet Pea section of the nursery. Of, as yet, unnamed sorts we were attracted by a good scarlet of the Mammoth type, a pretty blue variety, several with double standards, and one already named, Shot Silk, pale blue, with pink in the standards. Messrs. Jas. Carter and Co. believe that Sweet Peas with double standards will become popular and their faith is shown in the numerous colour selections they possess of the Fluffy Ruffles type.

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

The Effects of the Drought.—I was recently shown over an orchard in which Lane's Prince Albert and Cox's Orange Pippin were two of the principal Apples grown, and it was most remarkable to see how these two varieties were behaving under the dry conditions. The trees were growing in a grass orchard stocked with poultry. Lane's Prince Albert was bearing a heavy crop of clean fruits, with foliage of full size, and was in perfect condition. On the other hand, Cox's Orange Pippin was bearing a very light crop, and the bushes were almost leafless. They were afforded the same cultural conditions in every respect, yet the one appeared to be in perfect health, while the other appeared to be anything but happy. It is very sad, but it tends to show how susceptible Cox's Orange Pippin Apple is to extreme conditions. In our grass orchard here, Cox's Orange Pippin in standard form has suffered severely, while in the same plot Worcester Pearmain is bearing a heavy crop and showing very little signs of the drought. Cox's Orange Pippin in bush form on cultivated ground is in perfect health, the foliage is dark green, and the leader growths have attained a length of eighteen inches, which emphasises the value of soil cultivation. The same results are borne out again in other plots, with Worcester Pearmain grown in grass, and grown in cultivated ground. The former trees have dropped most of their fruits, and the foliage is a sickly, pale colour; whereas the trees on the cultivated ground have retained their fruits—a very fair crop—and the foliage is dark green in colour. *H. H. Cook, Horticultural Department, Reading University.*

Three Lovely Blue Annuals.—In spite of the continued drought, these annuals have excelled—and made lovely edgings in the borders reserved for cutting purposes. They were simply sown thinly in shallow drills in April, and have continued in flower to date:—Anagallis, large-flowered, blue; grows about six inches in height, and is a compact, very free-flowering plant. Phacelia campanularia, a lovely shade of blue, with bell-shaped flowers; it grows about nine inches high and makes a charming picture. Viscaria Blue Bird, also very free-flowering, and making a most compact plant about nine inches in height. The colour is slightly paler than in either the foregoing, but the plant is covered with flowers and remains in bloom a long time. On our gravelly soil these three annuals have proved real treasures this season. *G. H. Emmett, Taplow.*

The Future of Strawberries.—There is something cheerfully optimistic in the remarks made about the future of Strawberry growing in the leading article on page 101, and everyone interested will join in the hope that in a few years time the cultivation of Strawberries will not be "the difficult and exasperatingly disappointing task" it has been of late. At the same time, while they hope for the best, many growers have their doubts, and their experience this season has not tended to make them look very cheerfully into the future of Strawberry culture. It is very unfortunate that while the demand for fresh Strawberries has increased, the supplies are not forthcoming, and there must be thousands of people in the country who have not tasted Strawberries this summer, for the simple reason that they could not afford to buy them. I have not seen a single Strawberry offered retail at less than a shilling a pound—and poor samples at that—which means that Strawberries are beyond the reach of a big proportion of the population who used to indulge in the fruit when it was plentiful. What is wanted is more Strawberries, so that the public can buy them at prices they can afford to pay, and it is most undesirable in the interests of both producers and consumers that Strawberries should ever become a luxury fruit, like hot-house Grapes and Peaches. This, however, is what things are coming to very rapidly, and at the moment the future of commercial Strawberry growing seems to be hanging in the balance. In view of this disappointing state of affairs the whole community has good reason to hope that *The Gardeners' Chronicle* will prove to be a true prophet. *G. H. Hollingworth.*

Allium triquetrum.—I agree with all Mr. Arnott states of this species (p. 29, July 13), except the time of flowering. In Bentham and Hooker's *British Flora*, its distribution is given as "In damp, shady places in the Mediterranean region (of Europe) from Spain to Greece." Here, in Cornwall, it grows commonly, but locally, on hedgebanks and the grassy sides of roads, and on the edges of woods, and commences to flower in April, by the end of which month it is well out, and looks, at some distance, like white Bluebells, the green streaks down the middle of each segment of the perianth being separately invisible and serving to make the flowers appear more numerous and narrower that they really are. This species is included in the "Index Expurgatorius" of the present issue of the *Gardeners' Year Book* (p. 278), as to be used with caution. No doubt it spreads easily by means of its seeds and the multiplication of bulbs, but if the former are cut off so soon as the stems fall over, it should not be troublesome. I believe Mr. Arnott writes from somewhere in Scotland, which may account for the later flowering of the plant with him. *C. Nicholson.*

FOREIGN CORRESPONDENCE.

GYMNADENIA RUPESTRIS.

Undoubtedly, Gymnadenia rupestris is one of the loveliest of the tiny Orchids to be found growing in the crevices, or on rocks, shallowly covered with soil, in the woods of middle and northern Japan. The leaves are dark green, somewhat thick, and lanceolate, with several dark reddish-purple, longitudinal lines on the under surface. It usually produces three or four leaves on a stem attaining four to six inches in length. The lower part of the stem is dark reddish-purple, lighting towards the upper, on which dark reddish-purple stripes and dots are present.

When grown on the margin of the shady bog, G. rupestris attains a height of nine inches or more, and produces several very long, lanceolate leaves, and its graceful appearance is then lost. It bears five to thirteen or more flowers, loosely clustered, and of a lovely, soft, pinkish-purple colour, fading towards the spur, which is slightly pointed, and being darkest on the three-parted lip; the spur is twice as long as the lip.

A compost of two parts loam and one part coarse sand, adding a little peat, is most suitable. Fill one-fourth of a five-inch pot with crocks, and the remainder with compost, placing five tubers just beneath the soil level. Watering should be done sparingly, for if the compost is left in a state of saturation, grossness of growth will result. If long-stemmed plants are desired, some Sphagnum-moss should be scattered, at the time of potting, on the crocks; this will retain and always ensure ample moisture at the roots. G. rupestris loves light shade, but resents overcrowding. The cut-worm and other pests are very fond of the young plants; several times I have lost whole specimen plants in a single night. It flowers during June and July.

The genus Gymnadenia, which is closely related to Habenaria, deserves more attention, particularly this species. *K. Yashiroda, Japan.*

SOCIETIES.

BAKEWELL SHOW.

August 8.—The Bakewell Farmers' Club is a well-known institution, and the prizes offered at its annual exhibition have attracted the finest cattle, horses, pigs, sheep, and poultry from the whole of the Peak district, and also from far-distant counties, until the event has become one of the most popular of its kind in the Midlands and one whose awards are highly prized among agriculturists.

A few years ago a horticultural section was added and at once it proved a splendid additional attraction to the many thousands of people who attend and many of whom come from distant places by rail and road. This section has increased in extent and quality, and this year two big tents were needed to house the competitive and non-competitive exhibits; one of these was 200 feet by 50 feet and the other 205 feet by 85 feet.

Lieut.-Col. H. K. Stephenson of Hassop Hall, Bakewell, is the President for 1929 and Mr. U. Roland Burke, agent to the Duke of Devonshire at Chatsworth, is Director of the whole show—agricultural and horticultural; while Mr. A. W. Coakes, Chatsworth Estate Office, and Mr. W. Keetley, Bakewell, are the able Hon. Secretaries, and Mr. J. G. Weston, of Chatsworth Gardens, and Mr. H. W. Hards, act as Hon. Managers of this part of the Show.

Trade displays were uncommonly good, Mr. J. C. Allgrove's fruits, Messrs. Dobbie and Co.'s Dahlias, Messrs. Jas. Carter and Co.'s vegetables and Messrs. Alex. Dickson and Son's Roses being especially attractive.

Judging commenced at 8.30 a.m., and so soon as the judges had finished their work in the larger tent, the waiting thousands thronged in. Judging was concluded in the smaller tent by about 11 a.m., and three or four minutes later the tent was packed from end to end with visitors.

Half-a-dozen important open classes are provided and very handsome cash prizes offered—£126 in all, but as competition was very keen additional prizes were awarded, increasing this sum very materially.

There were two collections of hardy perennial flowers arranged on a space not exceeding thirty feet by ten feet; the collections were arranged on the ground level and made an effective display. The first prize of £12 was won by Messrs. W. Artindale and Son, Sheffield, who had a long, slightly curved, border-like display in which Gladioli, Bocconia cordata, Alströmerias, Heleniums and Kniphofias figured boldly. Second prize fell to the Gayborder Nurseries, Melbourne, for a square arrangement that was admirably finished off and contained good examples of Kniphofias, various Liliums, Echinops, Gladioli, Carnations and Solidagos.

Only one exhibitor came forward in the class for a collection of cut Roses occupying a space twenty feet by five feet; this was Messrs. Barron and Son of Barrowash, who contributed a bold display of flowers arranged in pillars and baskets and were awarded the first prize.

The £10 offered as first prize for a collection of Sweet Peas was won by Messrs. E. Leigh and Son, Stoke-on-Trent, with fine flowers of Pinkie, Valetta, Mrs. A. Searles, Gold Crest, Mammoth, Powerscourt, Magnet and other good sorts, arranged on a space twelve feet by five feet; second Mr. J. Haycock, Gyfelia, Wrexham; third, Mr. J. Wilcox, Mansfield.

Mr. J. Haycock had his revenge, however, in the open class for a dozen bunches of Sweet Peas, distinct, winning the premier award with excellent flowers of Olympia, Pinkie, Youth, Magnet, Powerscourt, Model, Valetta, What Joy, Mammoth, Mrs. Horace Wright and Royal Mauve; second, Messrs. E. Leigh and Son.

Four entries, all good, were made in the attractive class for a decorated table of fruits, to include eighteen dishes representing not fewer than eight distinct kinds. The handsome sum of £20 was offered as first prize and this was won by Messrs. Brook, Bray and Son, who showed good black and white Grapes, Peaches, Nectarines, Apples, Pears, Gooseberries, Melons, Cherries and Raspberries; second, Mrs. Walter Evans (gr. Mr. J. Maxfield), Derby; third, Lord Belper, Kingston Hall, Derby; fourth, Lord Leconfield (gr. Mr. F. Streeter), Petworth Park, Sussex. The schedule only allowed for two prizes, but third and fourth awards were added by the Committee at the request of the judges.

The most astonishingly fine competition was found in the last of the open classes. The schedule demanded a comprehensive display of vegetables (arrangement to be left to the discretion of the exhibitor), to occupy a space not exceeding 120 square feet of tabling, and offered two prizes, one of £20 and one of £10. Two competitors came forward and each was provided with an end space in the central portion of the larger tent; they were Mr. A. Falconer, gardener at the Cheadle Royal Hospital and Mr. F. Streeter, gardener to Lord Leconfield at Petworth Park, Sussex—both well-known contributors to *The Gardeners' Chronicle*, and each owning a well-deserved reputation as a skilful cultivator and exhibitor. It was a very fine battle between these two, and their displays alone were worth travelling some hundreds of miles to see. The Cheadle Royal exhibit won the premier award; it appeared to be rather larger and better filled than the one from Petworth, and Mr. Falconer would be the first to admit that he had some advantage in living nearer Bakewell than his competitor. His Potatos, Celery, Runner Beans, Leeks, Tomatos, Beets, Onions, Lettuces, Cauliflowers and Endives were splendid and his general arrangement at once bold and attractive. Mr. Streeter's effort was scarcely less attractive but he needed "more weight" in his background to compete successfully against Mr. Falconer; he showed excellent Premier Onions, Aubergines, salad material in great variety, Beets and Tomatos, while his Carrots and Parsnips were exquisitely symmetrical and clean, and much superior to those in the premier collection. We offer our heartiest congratulations to each competitor for the grand displays they staged in one of the finest competitions it has been our good fortune to witness.

In the other sections of the show there were many fine exhibits. Mr. Haycock won the Challenge Cup offered by Mr. J. Cyril Lockwood for the best nine vases of Sweet Peas; Mr. Roland Burke and Mr. J. J. Kay, both of Bakewell, were second and third respectively. Mr. Haycock was also first prize-winner for six vases of Sweet Peas, followed by Mr. H. E. Welch, Belper, and Mr. S. Tinsley, Ashford, Bakewell. Mr. Welch, however, scored heavily in the single vase classes, where special colours were required. He won with Model, Pinkie, Powerscourt, Olympia and Gorgeous in fairly close competition.

Mr. Roland Burke showed the best collection of "cut garden flowers" with a bright display in which finely-grown annuals were a feature; the R.H.S. Banksian Medal was also awarded as this was considered the best exhibit in sections B and C. There were eight competitors and as each one filled a space six feet by three feet it will be obvious that the combined display was particularly good. The President, Lt.-Col. H. K. Stephenson, Hassop Hall, Bakewell, won the second prize.

Mr. J. Cyril Lockwood, Ranmoor, Sheffield—of "Brighter Sheffield" fame—was a successful competitor, winning first prizes for six bunches of outdoor flowers, for six vases of Annuals—a grand lot, in which Larkspurs, Calendulas, Nemesias, Stocks and Candytufts were finely shown; for a glass vase of flowers artistically arranged; and for several other items.

Other leading prize-winners included Mr. Stanley Orme, Mrs. McCreagh, Mr. R. Flint, Mr. E. L. Hoyle, Mr. W. E. Ann, Mrs. Storrs Fox, Mrs. Walter Evans, A. Preston Jones, Esq. (gr. Mr. J. Bacon), Mickleover; L. A. Clowes, Esq. (gr. Mr. J. Hammond), Ashbourne; and Mr. J. H. Hopkinson, Clay Cross.

Medal Awards to Trade Displays.

Large Gold Medals.—To Mr. J. C. Allgrove, for fruit trees and picked fruits; to Messrs. Jas. Carter and Co., for a display of vegetables; to Messrs. John Peed and Son, for stove and greenhouse plants; to Messrs. Alex. Dickson and Sons, for Roses; to Messrs. Dobbie and Co., for a grand lot of Dahlias; and to Mr. T. Robinson for Roses.

Gold Medals.—To Messrs. Backhouse's Nurseries, Ltd., for a rock garden; to Messrs. Brook, Bray and Son, for floral designs; to Messrs. Daniels Bros., Norwich, for Gladioli and Phloxes; to Messrs. Dickson, Brown and Tait, for Gladioli; to Messrs. Dickson and Robinson, for Hydrangeas; to Messrs. C. Englemann, Ltd., for Carnations; to Messrs. E. F. Fairbairn and Sons, for Phloxes; to Messrs. W. Lowe and Son, for Roses; to Messrs. R. W. Proctor and Sons, for Roses; to Messrs. W. H. Simpson and Sons, for Phloxes.

Silver-Gilt Medals.—To Messrs. Barron and Sons, for rock and water garden; to Messrs. Blackmore and Langdon, for Phloxes and Begonias; to Mr. Alfred Dawkins, for Gladioli; to Messrs. Dicksons, Ltd., for Roses; to Messrs. John Forbes, Ltd., for Pentstemons; to Messrs. Hewitt and Co., for Roses; to Messrs. Pennell and Co., for hardy flowers; to Messrs. Maxwell and Beale, for a rock garden; to Mr. Stephen Sims, for a rock garden.

Silver Medal.—To Messrs. Wheatcroft Bros., for Roses.

SCOTTISH NATIONAL SWEET PEA, ROSE AND CARNATION.

August 7 and 8.—In respect to the number of entries and the attendance of the public the annual show held in Kelvin Hall, Glasgow, was the largest and most successful in the history of the above Society. The opening ceremony was performed by Lady Wilson, Invertrossachs, and in proposing a vote of thanks Mr. William Cuthbertson declared that the show of Sweet Peas would rank as the finest in Britain if not of the world and he also praised the system on which the seedling trials were conducted. In his opinion the final adjudication which took the form of judging the varieties when bunched, was helpful in determining the true colour tones of the flowers.

There were 152 classes scheduled and except in a few instances they were well filled, something like 1,500 vases being staged in the Sweet Pea section alone. A desirable improvement was introduced in the lay-out by arranging the decorated tables, interspersed with Palms, in the centre of the hall and flanking them by tables containing the competitive and trade exhibits.

In the open classes for Sweet Peas Mr. John A. Grigor, Banff, defeated Messrs. Torrance and Hopkins, Busby, and Mr. David Smith, Cummock, in the competition for twenty-four vases; Improved Daisybud, Picture, Grenadier, Charming, Magnet, Pinkie and Mrs. Searles were prominent in his set. He also scored for six vases containing novelties of 1929. These consisted of well-grown blooms of Treasure, Valetta, Vectis, Blue Bell, Flamingo and Idyl.

Mr. F. Dunbar, Kilmahew, Cardross, showed the best of twelve vases, and the runners-up were Mr. Alex. Barthwick, Glenoran, Helensburgh, and Mr. J. M. Urquhart, Castle Gardens, Roseneath.

The principal prize-winners in the Gardeners' Classes were:—Mr. Robert Findlay, Invergare, Rhu (12 vases); Mr. Charles Glass, Bloomhill, Cardross (nine vases); Mr. Arthur Godfrey, Artarman Gardens, Rhu (six vases); and Mr. John Genge, Whitehouse Gardens, Helensburgh (three vases).

The Burpee Cup for twelve vases Sweet Peas secured a large entry, and keen competition was experienced. The trophy was won by John R. Paterson, Alloa, whose exhibit was notable for the fresh and clean appearance of the flowers, which included excellent specimens of Charming, Grenadier, Powerscourt, Chieftain and Sybil Henshaw.

The Claud Allan Cup for six vases was awarded to Robert Findlay, Rhu, while the best vase of any 1928-9 variety was Flamingo, shown by Mr. George Ballingal, Dumbarton, and Mr. James Paul's vase of Powerscourt was adjudged to be the best vase of Sweet Peas in the show.

Roses were strongly represented in the open section. Here Messrs. D. and W. Croll put up a representative collection which was outstanding in its artistic arrangement. In this first prize exhibit Else Poulsen, Mrs. Barraclough, Angele Pernet and Shot Silk were prominent. Messrs. Thos. Smith and Son, Stranraer, and Mr. C. Ferguson, Dunfermline, were placed second and third. Basket classes occupied a large space on two sides of the central table and while the display as a whole was the best seen at a Glasgow Show, the blooms bore evidence of the previous day's rainfall. Mr. R. Ferguson defeated Mr. William Ferguson, in the class for twelve baskets, but the positions were reversed in the class for six baskets. Cleaner flowers were submitted in the class for three vases by Messrs. D. and W. Croll, who were successful with a fine trio composed of Margaret McGredy, Miss Henry Bowles and Mrs. Barraclough. Very few points separated the winning lot from those of Messrs. Adam and Craigmile, who, however, scored heavily in the two succeeding classes for forty-eight and twenty-four blooms. The former group contained a bloom of the pink variety Anne, which received the special award for the best Rose in the show. The Messrs. Croll who were second, were recompensed by their success in the class for twelve blooms. Mr. William Ferguson had the superior flowers in three of the six classes for twelve blooms of one colour, viz., pink (Mrs. Henry Bowles), red (Earl Haig) and white (Frau Karl Druschki). Messrs. D. and W. Croll excelled in the cream and any other colour classes with Mrs. Lamplough and Lady Inchiquin, while Mabel Morse exhibited by Mr. W. Ferguson was the best in the yellow class.

The Cup presented by Mrs. Arthur, Rosemount, Monkton, for the best amateur entry of twelve blooms, was won outright by Mr. James Paterson, Lamington, who also provided the best bloom in the amateur section.

Keen rivalry prevailed in the Carnation section where the exhibits reached a high standard of excellence. Mr. Alexander McMillan, Cumnock, who won first prize in all four classes for six vases in the open competition for border varieties, had eight first prizes and three second prizes to his credit and these carried with them the Carlaw and Irvine Valley Cups. The Woolman Gold Medal and the Secker Silver Medal went to Mr. J. H. McDonald, Glasgow, and other names prominent in the prize list were: Mr. John Macfarlane, Airdrie; Messrs. Torrance and Hopkins, Busby; Mr. James Smith, Darvel; Mr. Alex. Dalziel, Auchenleck; Mr. Arthur Ross, Kilmalcolm; and Mr. John Loan, Coldstream.

Novelty Trial Awards.

In accordance with the conditions applicable to the trials of new Sweet Peas conducted by the Society at Helensburgh, the seedlings had been inspected twice by the judges during the period of growth, and they were staged in vases for the final adjudication which resulted in the following awards being made:—

Gold Medals.—To All Bright, cerise-scarlet, raised by Mr. C. C. Morse and Co., California; and Sheila, deep rose, from Mr. W. E. Sands, Lisburn, Northern Ireland.

Silver Medals.—To a salmon-pink seedling, raised by Mr. Robert Bolton and Son, Birdbrook; this variety was reserved for the Gold Medal by the National Sweet Pea Society; and a rose-cerise seedling, from Messrs. C. C. Morse and Co.

First Class Certificates.—To Loch Lomond, maroon, from Messrs. R. Bolton and Son; Purple Flame, from Messrs. C. C. Morse and Co.; Majestic, Purple, from Mr. W. E. Sands; a rose on cream ground seedling, from Mr. J. Stevenson, Wimborne; and Scintillant, rose, from Mr. J. Stevenson.

Certificates of Merit.—To Craigwell, salmon-pink, from Mr. F. C. Woodcock, Walmer; Admiration, rosy lavender, from Mr. F. C. Woodcock; Beatall, cerise-pink, from Messrs. R. Bolton and Son; an orange-scarlet seedling, from Messrs. R. Bolton and Son; Excelsior, blue, from Messrs. Dobbie and Co., Edinburgh; Lustre, carmine, and Purity, white, from Mr. J. Stevenson; a rose-cerise seedling, a deep pink seedling, a lavender seedling, a blue seedling, and a soft cerise seedling, all fine varieties, raised by Messrs. C. C. Morse and Co.; Leviathan, maroon, from Messrs. Stark and Son, Fakenham; and Mrs. Cinders, orange-scarlet, from Messrs. Ireland and Hitchcock, Marks Tey.

Trade Awards.

Gold Medals.—To Messrs. Dobbie and Co. (2) for Sweet Peas and Roses; Messrs. Austin and McAslan, for Roses; Mr. R. Lawrie, Carnwath, for Begonias; Messrs. Campbell and Son, for Carnations; the Scottish Wholesale Co-operative Society, for Roses; and to Messrs. R. K. Gemmell and Co., for Sweet Peas and Roses.

Silver Medals.—To Messrs. Bannatyne and Jackson, for Roses and hardy flowers; and to Messrs. Leighton, for hardy flowers.

ROYAL HORTICULTURAL.

August 13.—Notwithstanding that it was held in the height of the holiday season there was a goodly exhibition at the Society's new hall on the occasion of the meeting of August 13. Gladioli were prominent and provided the bulk of the display, but Phloxes were well shown and seasonal border flowers were of brilliant colouring. An outstanding exhibit was arranged by Mr. Amos Perry—the lecturer for the afternoon—who contributed a wonderfully fine collection of Nymphaeas, Sarracenias, Ferns and other water-loving and bog plants.

Orchid Committee.

Present: Mr. Charles H. Curtis (in the chair), Mr. Gurney Wilson (Hon. Sec.), Mr. Fred. K. Sander, Mr. Arthur Dye and Mr. T. Armstrong.

Only four plants were submitted for awards and the only award recommended by this small committee was a Cultural Commendation to F. Mercer, Esq., for Aerides Fieldingii.

Groups.

Only one group of Orchids was forthcoming on this occasion and it was from Messrs. Charlesworth and Co. Outstanding subjects were Cattleya Warscewiczii with half-a-dozen flowers, C. Hardyana var. alba, with nine lovely blooms, C. Dupreana, Brasso-Cattleya Ilene, the light yellow Laelio-Cattleya Daffrosa, Cypripedium Curtisii and its pale variety Sanderae, the old C. Charlesworthii, Odontonia Etna, a bright set of hybrid Odontoglossums, the quaint, long-spiked, pellucid-green-flowered Eria stellata, Cirrhopetalum guttatum, Maxillaria longisepala, and the graceful Oncidioda Charlesworthii.

Messrs. Black and Flory submitted a few seedling Miltonias obtained by crossing M. Bleuana var. Reine Elizabeth with M. Beau Brummel; these were very pretty. Messrs. Cowan and Co., and Messrs. J. and A. McBean showed individual plants, and a good example of Aerides Fieldingii, carrying a long and particularly fine spike was shown by F. Mercer, Esq. (gr. Mr. Banks), Clovelly, Stenning. (Cultural Commendation.)

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair, Mr. Arthur Turner, Mr. B. R. Long, Mr. A. E. Vasey, Mr. James B. Riding, Mr. William Howe, Mr. D. B. Crane, Mr. Charles E. Pearson, Mrs. Helen Lindsay Smith, Mr. Courtney Page, Mr. W. B. Gingell, and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. James Hudson, Mr. G. Yeld, Mr. Reginald Cory, Mr. E. A. Bowles, Mr. G. Reuthe, Mr. L. R. Russell Mr. W. Irving, Mr. Amos Perry, Lady Beatrix Stanley, Hon. Henry McLaren, Mr. Clarence Elliott, Mr. Gerald W. E. Loder, Mr. T. W. Taylor, Mr. T. Hay, Mr. W. G. Baker and Mr. N. K. Gould, Secretary.

Awards of Merit.

Fuchsia corymbiflora (*seedling*).—The award to this handsome Fuchsia is subject to its being named. It is similar to Fuchsia corymbiflora but bears longer, pendulous clusters of richer-coloured flowers. Shown by Mr. A. J. Cobb, University College Gardens, Shinfield, Reading.

Gentiana prolata.—A very pretty species from Bhutan. It makes a dwarf, rounded plant. The relatively large flowers are of sky-blue colour with white tubes, and are solitary on stiffish stems about six inches long and set with tiny lanceolate leaves. Shown by Andrew Harley, Esq., Devonhall, Muckhart, Perthshire.

Pinguicola gypsicola.—A Mexican insectivorous plant, chiefly of botanical interest. It bears bright mauve flowers on erect little stalks. Shown by The Director, Royal Gardens, Kew.

Salvia patens var. Cambridge Blue.—A very delightful companion plant to the well known rich blue, Mexican, half-hardy perennial. The flowers are of real sky-blue colour. Shown by Mr. T. Hay, Hyde Park, London.

Streptocarpus Improved Aldenham Strain.—Many flowers of distinct and charming shades of colour were shown and they all evidenced first-rate cultivation. Shown by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, Herts.

For Trial at Wisley.

Viola cornuta var. Lavender Gem.—The plants were of compact habit and bore plenty of medium-sized blue-lavender flowers.

Viola cornuta var. White Gem.—This is a white counterpart of the above and the flowers had pale yellow tubes. Both varieties were shown by Messrs. Watkins and Simpson, Ltd.

New Dahlias.

The Joint Dahlia Committee met for the first time this season and selected the following seedling Dahlias for Trial at Wisley :—

Mabel Crossling.—A showy Miniature-Paeony flowered variety of glowing scarlet colour. Shown by Mr. A. J. Cobb.

Ringdove.—A large Cactus Dahlia of the best exhibition type. The long, rolled florets are flushed with bright salmon-pink. This, and the the following, was shown by Messrs. J. Stredwick and Sons.

Winnie.—A large Cactus variety with broad pale yellow florets, heavily flushed with lilac.

Mrs. F. D. Durham.—A handsome large decorative variety of glowing pink colour.

Mrs. W. E. Phillips.—A large decorative Dahlia of substantial type and yellow colour.

Groups.

An exceedingly valuable and interesting group of aquatic and allied plants was set out in a most attractive manner by Mr. Amos Perry and deservedly received the Society's Gold Medal. It was one of the most comprehensive collections of its kind that we remember. There appeared to be everything possible and desirable, at this season, for the Water and the Bog Garden, even to the aquaria of the rare and fascinating little fishes of which Mr. Perry has so complete a collection. To the cultivator the finest part of this wonderful exhibit was the flowers of so many of the hardy Water Lilies, which were superb in their size and quality. The Nymphaeas included Virginale, an immense white flower; Marliacea, rose, of rich colour; Marliacea chromatella, of deeper yellow colouring than usual; Murillo, crimson; and Escarboucle, deep rich crimson. There was also an admirable collection of Sarracenias which included S. purpurea, S. intermedia and S. Mitchellii, with Darlingtonia californica. A great many of the more ornamental Reeds and Rushes, with Butomus umbellatus in full flower, Droseras and Loosestripes, were included.

Just inside the hall Messrs. J. R. Pearson and Sons had a very interesting group of desirable Marigolds of all the best types and varieties and they also showed, in their Liveland's Strain, a good type of dwarf Dahlia. Messrs. J. Cheal and Sons had a prettily-arranged table of early Dahlias of many types and Mrs. G. M. D. Dodd, Broom Lodge, Bracknell, showed a selection of Dahlia Seedlings, chiefly of the Collerette type. Mr. H. Hemsley again showed a good selection of his improved Sidalceas and Mr. John Golding had a well-arranged collection of Scabiosa caucasica. Mr. W. Yandall had many pans of Viola flowers in distinct varieties of considerable garden value.

A large collection of Pentstemons of greatly improved varieties was staged by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree. These bore erect branches of large, well-marked flowers of pleasing colours. The many varieties included Lovely, H. J. Elwes, Rosealba, Lord Hunsdon, Aldenham Gem, Masterpiece and Scarlet Lady.

Miscellaneous border flowers were shown in considerable quantity and of good quality. Messrs. G. and A. Clark included secondary spikes of Delphiniums and Heleniums; Messrs. B. Ladhams, Ltd., had many fine spikes of perennial Lobelias, Astilbes, Phloxes and spikes of Yucca filamentosa; the Misses Hopkins had many useful border flowers; Messrs. L. R. Russell, Ltd., showed Phloxes and also a collection of Fuchsias in small pots; Mr. A. Miles included Gaillardias and Coreopsis; Mr. S. F. Goodliffe grouped Phlox and Liatris, spicata with other flowers; Mr. Geo. E. P. Wood and Messrs. E. J. Redgrove and Son had varied collections of interesting flowers.

Another large and well-arranged collection of herbaceous Phloxes was contributed by Mr. H. J. Jones. As on the previous occasion he had exceedingly good trusses. The chief varieties were Mrs. H. J. Jones, Maiden's Blush. W. M. Jacobs, Le Madhi, Attraction, Thor, Europe and Evangeline.

A collection of half hardy shrubs from Messrs Robert Veitch and Son included floriferous sprays of Eucryphia pinnatifolia, Escallonia Iveyi, Desfontainea spinosa and Erythrina Crista-galli. They also showed branches of Hippophae rhamnoides with clusters of yellow fruits, and in Erica cinerea var. Francia, a graceful dwarf Heather. Messrs. Hollamby's Nurseries grouped many Clematis of good varieties with well-fruited little bushes of Pyracantha coccinea (Crataegus Pyracantha).

Their customary collections of well-grown Carnations were staged by Messrs. C. Engelmann, Ltd., and by Messrs. Allwood Bros. while good Roses were shown by Messrs. B, R. Cant and Sons and Mr. J. H. Pemberton. Messrs. M. Prichard and Sons had a few hardy Nymphaeas with an excellent group of border flowers which included Kniphofias (Tritomas) of good varieties, Calla palustris and Agapanthus umbellatus albus. Messrs. Stark and Son associated flowers of a desirable strain of Iceland Poppy and also Dazzler, a richly-coloured double-scarlet Shirley Poppy, with Sidalceas and other border flowers.

In view of the Gladiolus show there were many good spikes on view. Messrs. Kelway and Son showed such large-flowered varieties as Rose Precocé, Madge Parkinson, Margie Kelly and Dorcas, and also had a good selection of Primulinus hybrids. Messrs. Wakely Bros. and Co., staged many large-flowered sorts of good quality. Mr. H. Prins has a large collection and also showed many richly-coloured spathes of Richardia Elliottiana. Mr. George G. Whitelegg included Red Emperor, Brilliant and Electra in his collection. At the end of the hall, Messrs. W. J. Unwin, Ltd., had a delightfully-arranged group of Gladioli. The chief large-flowered varieties were Yvonne, Taro, Rose Precocé, Dr. F. E. Bennett, Red Emperor and Pride of Haarlem. Messrs. D. Stewart and Son showed good spikes of both types of Gladioli, while Messrs. R. H. Bath, Ltd, used the graceful Primulinus hybrids to good effect.

The Foremarke Cup competition was responsible for several exceedingly good exhibits. The Cup was won by W. E. Phillip, Esq., Wood Green, whose excellent spikes included Golden Dream, Heliosa, Ffitzer's Triumph, Red Emperor, Bertie Snow, Queen Mary and Roi Alexander. Messrs. H. Langridge and Co. were second and Mr. H. Prins was third.

Fruit and Vegetable Committee.

Present : Mr. E. A. Bunyard (in the chair). Mr. H. S. Rivers, Mr. G. Kelf, Mr. W. H. Divers, Mr. H. V. Taylor, Mr. J. Basham, Mr. J. C. Allgrove, Mr. E. A. Laxton, Mr. George Woodward, Mr. E. Beckett, Mr. W. F. Giles, Mr. Joseph Cheal, Mr. A. Poupart, Mr. R. H. Hall, Mr. T. Pateman, Mr. G. F. Tinley, Mr. A. Bullock, Mr. W. Poupart, Mr. F. Jordan and Mr. H. Markham.

Mr. Kettle exhibited Raspberries and Mr. J. C. Allgrove sent a few varieties of Gooseberries for the consideration of the Committee, otherwise there were no exhibits, nevertheless the Committee had a long sitting, discussing certain matters in private.

ROYAL HORTICULTURAL OF IRELAND.

The Summer Show of this Society, which was held in the Sandymount Hall of the Royal Dublin Society on August 7, 8 and 9, was in every particular a pronounced success. Entries in all sections were a record, and the quality of the exhibits little short of marvellous, having regard to the abnormally dry summer and the terrific rainstorm which succeeded it. A delegation from the Royal Horticultural Society of England, consisting of the Hon. H. D. MacLaren, Mr. Mark Fenwick and Mr. Reginald Corry were present at the opening of the Show, and were eloquent in their praise of the excellence of the exhibits; they presented four Gold Medals for competition in the nurserymen's section and these were awarded to Messrs. Alex. Dickson and Sons, Messrs. S. McGredy and Son, the Donard Nursery Co. and Messrs. Sutton and Sons (Reading), the last for a magnificently-staged collection of vegetables consisting of nearly two hundred dishes.

Apart from the trade exhibits—amongst which were Messrs. Alex. Dickson and Sons' superb stand of Roses, comprising close on five thousand blooms; Messrs. Allwood Bros.' magnificent show of Carnations; Messrs. McGredy and Son's glorious display of Roses; the wonderful Phloxes staged by Mr. James Dugan, Carlow; the serried ranks and gigantic baskets of exquisite Roses put up by the Donard Nursery Co. and the brilliant collections of Gladioli and Sweet Peas staged by Sir J. W. Mackey, Ltd.; Messrs. Carter and Co.; Mr. George Watson: Messrs. Spiers, Athy, and others; and the lovely Rock Garden and Lily pool arranged with such realistic effect by Messrs. Wm. Drummond and Sons, Ltd.—the exhibits from private gardens were of outstanding excellence.

In the large groups of ornamental foliage and flowering plants occupying the floor space in the centre of the spacious hall, the Hon. A. E. Guinness (gr. Mr. Stevens), took premier honours with a splendid collection of richly coloured Coleus, Palms, and flowering plants in variety. In the groups of hardy ornamental and flowering shrubs it was highly satisfactory to note the splendid display put up by Mrs. Stephenson (gr. Mr. Buggle), Stillorgan Road, which was a close second to the superb lot arranged by the Donard Nursery Co.

In the cut flower section, the display was pronounced equal to any seen at any of the cross-channel shows. Sweet Peas constituted the *piece de resistance* in this department; the glorious groups staged by Mrs. Alfred E. West (gr. Mr. C. E. Coster), Lord Ardee (gr. Mr. W. Barrett), Mr. Faulkner (gr. to the late Lord Rathdonnell); and Sir J. W. Mackey, Ltd., being quite "too beautiful for words." Gladioli were rarely more largely, and certainly never more attractively shown, and here, as in Sweet Peas, Mr. Chas. E. Coster was invincible in the Cup and principal classes. Annuals formed a charming feature, the chief honours being deservedly won by Wisdom Hely, Esq. (gr. Mr. W. H. Orr); Dahlias, Begonias, Pentstemons, Phloxes, Antirrhinums, Carnations, etc., were all magnificently shown, and the competition of the keenest order.

There was a large display of fruits, the Grapes, Melons, Peaches, Nectarines, etc., calling forth unlimited praise, while hardy fruits were to be seen in their thousands, and all of the very highest quality despite a somewhat trying season.

In the vegetable section, Mr. Stevens, as usual, showed how the produce should be grown; his collections both in the championship and the twelve classes, being models of perfect cultivation and staging.

Medals—gold, silver, silver-gilt and bronze, R.H.S., R.H.S.I., Banksian, Floral and journalistic—were plentiful "as leaves in Vallambrosa," yet in no case were they undeservedly awarded. The only shadow in this truly enjoyable reunion, was that caused by the absence, through illness, of the courteous and beloved Secretary, Mr. E. Knowldin.

ANSWERS TO CORRESPONDENTS.

Apple Foliage Curling.—*C. B. F.* The foliage of the Apple Cox's Orange Pippin does not show any sign of having been attacked by either insects or fungi. As you stated that the trees are not suffering from lack of water, the curling is probably due to the check which the trees received recently from low night temperatures following high day temperatures.

Begonias and Gloxinias Unhealthy. — *N. M. A.* The Begonia leaves are attacked by thrips and mite. Dipping the plants in a nicotine-soap wash will eliminate both these pests. As the eggs are unharmed by the wash, the operation should be repeated two or three times at intervals of ten days. The Gloxinia foliage is affected by a bacterial spot disease, the outcome of growing the plants in a humid atmosphere. Reduce the amount of water vapour in the house by lessening the amount of moisture used in damping down and overhead syringing.

Melons.—*A. B.* When Melons are grown in pots and plunged close together, or planted out one foot apart, they should always be grown as single cordons, as space for laterals is extremely limited, consequently very close pinching is necessary. Each lateral may be pinched close back as soon as seen and succeeding spray growths removed; in this way the true cordon form is retained. All laterals showing fruit may be pinched at one leaf beyond the fruit, while those from which superfluous fruits have been removed should be kept pinched to the first joint from the main stem. If two or more cordons are desired from one plant, allow more space, but the general manipulation and other details of culture are always the same, care always being taken to preserve the main leaves. These remarks apply to plants from which very early and very late fruits are the leading object, but they are altogether out of place for Melons grown on the extension principle.

Names of Plants.—*W. D.* 1, Campanula carpatica; 2, C. Poscharskyana; 3, C. cochlearifolia; 4, Sedum sp. (send in flower); 5, Epilobium sp. (send in flower).—*Constant Reader.* Hieracium aurantiacum.—*R. E. F.* 1, Isatis tinctoria; 2, Dictamnus albus; 3, Hemerocallis fulva.—*S. J. W.* Campanula lactiflora.—*G.* 1, Chrysanthemum maximum; 2, Centaurea macrocephala; 3, probably a form of Allium oleraceum; 4, missing; 5, Asperula odorata; 6, Lychnis chalcedonica alba; 7, Veratrum nigrum; 8, Kalmia latifolia var. myrtifolia; 9, Hypericum calycinum; 10, missing; 11, Trachelospermum jasminoides; 12, Lupinus arboreus. *A. A.* Potentilla fruticosa.—*A. W. R., Spalding.* Castanea sativa (Sweet Chestnut).—*J. W. N.* 1, Aglaonema commutatum; 2, Sansevieria canaliculata; 3, Calathea Lietzii; 4, Maranta bicolor var. Kerchoveana; 5, Strobilanthes Dyerianus; 6, Nephthytis picturata; 7, Aglaonema Haenhii; 8, Dieffenbachia imperialis; 9, Hoffmannia Ghiesbreghtii var. variegata; 10, H. Ghiesbreghtii; 11, Alocasia macrorhiza variegata; 12, Rhoeo discolor; 13, Panax Balfourii var. variegata; 14, Acalypha Godseffiana; 15, A. Hamiltoniana; 16, Isoloma hirsuta; 17, Nandina domestica; 18, Sanchezia nobilis; 19, Heliconia Seemannii; 20, Heliconia Bihai; 21, Dieffenbachia Carderi; 22, Aeschynanthus Lobbianus; 23, Coccoloba grandifolia.

Radium Sand.—*E. W. Pope.* The material sent consisted mainly of red and white silicious sand, the red form coloured with iron. It contained small pebbles of white quartz and flint, with some particles of mica, and some small pieces of glass or spar. None of the above materials would supply any plant food, except silica, useful in strengthening the stems of cereals, grasses, sedges, etc. It is reputed to contain radium, a recently discovered chemical element capable of giving off heat over a very long time, and so stimulating the growth of plants, independently of sun-heat. Radium is very scarce everywhere, and whether or not there is sufficient in this to make an appreciable difference to the growth of plants is a matter for experiment. You could try some of it in the soil for potting some plants, and potting some others in the same compost, without the sand, to see whether or not there is any difference in growth. It could also be used for vegetables in the garden, with a control plot alongside to see if there is difference in growth, earliness or maturity. The sand evidently occurs in this fine form naturally, and does not seem to have been ground, although it could have been crushed to break up the hardened pieces, because the small pebbles have not been broken, but have been water-worn in an ancient bed of the sea. If it shows no appreciable improvement in the growth of plants, it will not do them any harm.

Sweet Peas with Streak.—*J. C., J. G.,* and *W. C.* The Sweet Peas are suffering from "streak," which is due to the bacillus, B. lathyri. The disease is encouraged by an excess of nitrogenous manures in the soil. The infected plants may be induced to grow away from the attack by watering them with a solution of sulphate of potash (one ounce in five gallons of water), using about one pint to each plant and continuing the treatment at weekly intervals until clean growth is seen. Remember that the disease may be spread from an infected to a healthy plant by means of a pruning knife.

Tadpoles in Ornamental Water.—*J. F. S.* The tadpoles got into the Water Lily pool by frogs laying their eggs there early in the spring. They lie up in hiding during the winter, and when breeding time arrives they go hunting for pools of water. In a short time after the eggs are laid, you will find one or more balls of eggs in a floating mass of slime. The eggs can be seen like small, black eyes embedded in the slime—hundreds of them. By means of a piece of sacking you can lift out the whole mass and carry it away to be deposited in some dry place exposed to the sun, and the whole will dry up, thus preventing the presence of tadpoles in the water. In the meantime, by the aid of an improvised butterfly net, of any thin fabric, tied to a circular wire, with a handle you can soon fish out all the tadpoles in the water. Much of the green, slimy vegetation in the pool can be taken out by the same device. Cement-lined pools should be emptied and scrubbed out every year in March or April.

Tomatos Failing to Colour. — *Constant Reader.*—The failure of your Tomatos to ripen and colour is, as you suggest, due to lack of potash in the soil. This condition is best remedied by applying a light dressing of nitrate of potash, which should be watered in well.

Thyme and Campanula Failing.—*J. M. C.* The plants of Thymus lanuginosus and Campanula carpatica appear crippled and burnt up, which may be due to the conditions under which they are growing. The general appearance of the plants is unhealthy, but there is no sign of disease organisms on the plants.

Thuya occidentalis and Live Stock.—*J. D.* The American White Cedar or Arbor-Vitae (Thuya occidentalis), along with other species of Thuya, such as T. Lobbii, T. plicata and T. gigantea has frequently been held responsible for the poisoning of live stock. Unfortunately, little is known concerning the actual poisonous properties of these plants. Many cases of fatal poisoning from Thuya occidentalis are on record, but on the other hand stock have also been observed to eat the foliage without noticeable ill-effects. It is thought by those in a position to judge that the poisonous principle may vary in amount in different localities and at different seasons. This is known to be the case with certain other poisonous plants. Probably also a fairly large amount must be consumed for the effect to prove fatal, and stock in the habit of nibbling small quantities frequently are less liable to be affected than those that that eat the plant as a result of access to it for the first time. The fact that Thuya occidentalis is sometimes used medicinally points to its not being violently toxic. A decoction prepared from the leaves is used for intermittent fevers and coughs, and mixed with lard as an ointment in cases of rheumatism; while a volatile oil extracted from the shoots and leaves is sometimes used as a vermifuge. In considering plants for hedge-planting on farms it is advisable to bear in mind the suspicion that has come to be attached to Arbor Vitae where live stock are concerned, especially as other safe hedge plants can generally be substituted.

Vine foliage with Mildew.—*J. W.* The vine foliage is attacked by mildew and should be dusted in the early morning with green sulphur. The water supply to the plants is inadequate, as some of the leaves show symptoms of having suffered from lack of water. There is some "scorch" and the variety may be one that requires shading during bright, sunny weather.

Communications Received.—M. T.—J. C.—G. F.—A. C.—T. H.—R. F.—G. F. W.—A. H. W.—T. E.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official *Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

502,991.—Illustration of a toboggan and a tobogganist. Cutlery and edge tools.—Arthur A. Trummel and Nephew, 211, Corn Exchange Buildings, Cathedral Street, Manchester, Lancashire. July 17.

PLACID.

503,266.—Cutlery and edge tools.—Peter Altenbach and Sohne, Schwanenwerk, Schwanenstrasse 26, Ohligs, near Solingen, Germany. July 10.

SHELLTOX.

502,686.—Insecticides, being goods for export only, but not for export to the Irish Free State.—The Asiatic Petroleum Company, Limited, St. Helens Court, Great St. Helens, London, E.C.3. July 10.

KONATE.

500,129.—Insectifuges, de-mothing and moth-resisting compounds.—American Cyanamid Company, 535, Fifth Avenue, City, County and State of New York, United States of America. July 10.

THE
Gardeners' Chronicle
No. 2,226.—*SATURDAY, AUGUST* 24, 1929.

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SUPPLEMENT PLATE.

Astilbe simplicifolia var. rosea.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 60·2°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, August 21, 10 a.m. (Greenwich time). Bar. 30·2. Temp. 62°. Weather, overcast.

The Drought. THE drought, as severe as sporadic, has resumed its sway in the south. Somewhere about the latitude of Scarborough in these islands is the dividing line between the regions of too little and quite enough recent rain. In the north, although they feared a drought, none came, and from Northumberland northward through the Scottish counties the pastures are still green and white—green with the pasture grasses, and white with Wild White Clover, the scent of which makes all the country air from Berwick to Aberdeen deliciously sweet. Coming south again down the western side of England, the full force of the drought is met on the light Herefordshire soils where pasture ground is burnt hard and keep for cattle already becoming scarce again. Back in Berkshire, although the gardens are still beautiful, the signs of drought are on every hand. Sun-loving plants, Zinnias, for instance, are repeating the brilliant sunshine by rainbow brilliance of flower. Roses also are enjoying the sun and responding to it by florescence and growth beyond the usual and beyond easy explanation. Certain other plants show unexpected reactions to the dry weather and sunshine; and the Brooms, for instance, both Cytisus aetnensis and Spartium junceum, were in flower a month ago and are only just going over. Strawberries, on the other hand, have never in all their lives looked so miserable. They fruited badly, and where neglected with respect to water have gone on looking worse ever since their few and somewhat acid fruits came to an untimely end. Why fruits should lack sweetness as a result of sun and drought is not readily explicable. Size they should lack, but not sugar. Of plants which have responded to drought by reducing their floral display, the most striking, perhaps, are the Immortelles—Helichrysum species. Instead of bursting out and bearing many of their papery flowers, each remains a miserable one-headed plant which needs must be cut down and well watered if it is to grow at all. The fruit-grower finds a heavy crop of troubles to diversify his pleasant lot. Last year he had heavy crops of Plums and wasps, and unless he fought the latter unceasingly the insects had the best of the fruits. This year when Plums are scarce—at least in some districts—wasps seem to have decided that there is nothing to live for, and have not bothered to get born. But with Apples fairly plentiful and water scarce, the birds—and those bad birds, the sparrows, to boot—have already started pecking and scooping out the flesh of these fruits. Another pest that makes trouble in the garden is the mole. Where the ground is dry it does not come, but so soon as a garden crop looking in perilous need of water gets a good drenching, the moles seem to congregate, and their underground passages, each a devastating earthquake to the roots of seedlings or young plants, increase and intersect in all directions. Thanks, however, to calcium cyanide—a pinch here and there in the runs—this pest may be scotched. Of all the effects of drought combined with sunshine, that manifested in upturned heavy soil is, perhaps, the most wonderful and instructive. In this garden, where we write, is a pond in the making. The excavated clay—heavy slabs of blue Kimmeridge clay—has been spread three feet deep over a meadow. In ordinary years these slabs would have the durability of tombstones. Not so this year. So soon as they are thrown out of the barrow fissures appear in them, and over the blue colour steals a brownish tint as the ferrous sulphide is oxidised. The fissures join and intersect until a kick with the foot causes the erstwhile slab of greasy, iron-hard, unkindly clay to crumble into little chunks and fine powder. Over there where the slabs have had the winter frosts as well as summer sun and drought to teach them kindliness, they are now reduced to finest powder, and on that ground which consisted a year ago of unweathered clay there is to-day a crop—and quite a moderate crop—of Onions, growing with not many misses in the rows. Not in many years would it be possible to see in such dramatic manner the fertilising effect of frost and sun. Thus it is indeed brought home to the observer how much our gardens lose, at least in some directions, by open winters and overcast summers.

Our Supplement Plate.—Astilbe simplicifolia var. rosea is the plant depicted in the Supplement Plate presented with this issue. A. simplicifolia is a charming subject and one in which the late Mr. Reginald Farrer found great delight. He regarded it as "a gift of the gods from Japan, which turned up 'unbeknownst' one day in an imported mass of Schizocodon, and ere long revealed itself as the most lovely Astilbe imaginable, for any cool, moist and shady corner on the most select of rock-works." A. simplicifolia produces "airy, eight-inch plumes of white blossom," and its variety rosea is equally valuable and beautiful, for its flowers are of a soft rose-pink shade.

Horticultural Travellers.—Two well-known horticulturists are on their way to America, and each proposes to combine business with pleasure over a period of several months. They are Mr. A. McBean, of Messrs. J. and A. McBean, Orchid growers, of Cooksbridge, and Mr. C. Engelmann, of Saffron Walden, who specialises in Carnations, but is equally clever in the management of Roses, Orchids, and many other things.

Diamond Wedding of Mr. and Mrs. Luke Dann.—Mr. and Mrs. Luke Dann, Chatsworth Place, Harrogate, celebrated their diamond wedding on August 14. Mr. Dann is eighty-five and his wife is one year his junior. Mr. Dann was gardener in the employ of the Harrogate Corporation for about thirty years, and up to his retirement a few years ago. He recalls that the Crescent and Baths Gardens, when he entered the service of the Corporation, were over-grown orchards, and the Valley Gardens were then a big field.

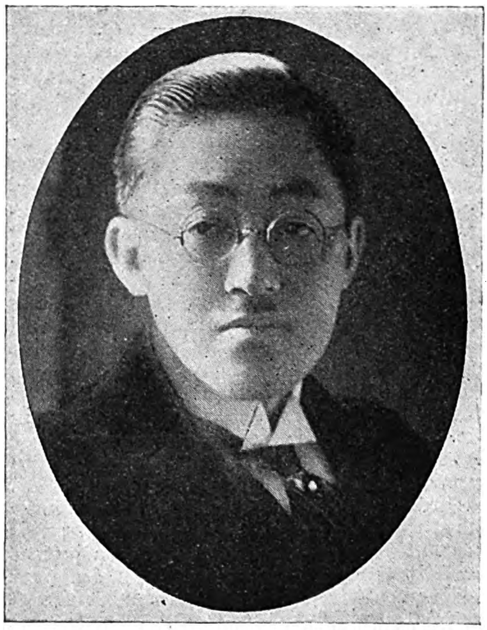
Glasgow Flower Show.—We learn that arrangements have been completed for the annual flower show promoted by the Corporation of Glasgow in conjunction with the Glasgow and West of Scotland Horticultural Society, which takes place in the Kelvin Hall, on September 3, 4 and 5. The show, which will be opened by Lady Inverclyde, will occupy practically the whole of the City's vast exhibition hall, and it promises to be a great success. The schedule of prizes contains no fewer than 467 classes, and apart from Cups, Trophies and Medals, a sum of £1,200 will be given in awards. Sections include rock and water gardens, pot plants, cut flowers, including Roses, Sweet Peas, Carnations, Dahlias, Chrysanthemums, Gladioli, Pansies and Violets, etc.; vegetables, decorative classes, and special classes for allotment holders and honey and bees. The principal awards are given in the class for rock, or rock and water gardens, £85 being divided among the four leading exhibitors. Cards will be shown on the winning exhibits setting forth the number of points given by the judges for design, proportion and shape; the setting of the stones; colours chosen in planting; skill in regard to grass-laying, planting, etc., and quality, suitability and rarity of plants. For a group of miscellaneous stove and greenhouse plants, £85 is awarded in three prizes, the first prize winner also securing the Corporation of Glasgow Challenge Cup, valued at £50. For eight bunches of Grapes, not more than two bunches of any one variety, the first prize is £9, along with the Thomson Challenge Trophy; and the Sir John Reid Challenge Cup, along with £4, is awarded to the winner in the class for four bunches of Grapes. The Lord Maclay Challenge Cup will be presented to the winner in the class for the best collection of vegetables containing thirteen varieties, the money awards being £8 for the first prize, £6 for the second, £4 for the third, and £2 for the fourth.

The Original British Larches.—Visitors who pay a visit to the famous woods of Birnam, immortalised in Shakespeare's *Macbeth*, situated near Dunkeld, Perthshire, should visit Dunkeld Cathedral, in the grounds of which they will find, at the north-west corner of the building, two magnificent Larches. These are considered to be the first examples of this tree to be introduced to Britain, and were brought from Switzerland in 1737. They were first planted in flower pots, but now they are magnificent specimens, tall and wide of girth. Expert woodmen declare the trees are still in perfect vigour.

Loch Ericht Tree Clearances.—An object lesson in what forestry is capable of doing for unemployment is furnished by the Loch Ericht tree clearance, which has given work to many men for months past. Planted some sixty years ago, by the late Sir John Ramsden, and situated 1,000 feet above sea-level, the forest throve splendidly, but the terrific gales of January, 1927, played havoc, and some 20,000 trees were blown down. The removal of these has given employment to many men. The work was arduous, many Spruce trees measuring ten to twelve feet in circumference. The Larches also were fine specimens, their height averaging from forty to sixty feet. Hauled to the lochside, the trees were rafted and towed down to the sawmills, where they were turned to commercial use. Now that this work is practically finished, another new job is in store for the men. It has been determined to still further thin the forest by cutting down 25,000 trees, which should provide another two years' work. The forest is one of the best in Inverness-shire, and even after these thousands of trees have been removed it will still appear to the onlooker as practically untouched, although it has provided four years' employment for a large body of men. The potentialities of the forests in northern Scotland in providing employment are obvious.

Dahlias in the London Parks and Gardens.—That the public parks and gardens of London have done much towards the achievement of the popularity enjoyed by the Dahlia at the present day cannot be gainsaid, for each year, at this season, Dahlias play a very prominent part in their adornment. For instance, in the Embankment Gardens the displays provided by Dahlias alone are magnificent, especially when it is considered that every Dahlia plant grown there is raised in the diminutive propagating quarters attached to the gardens, the Dahlias being started, and the cuttings rooted, in frames over hot-beds. Bordering the long, winding shrub borders are floriferous plants of Barlow's Bedder, red, and Kaiserin Augusta Victoria, white, two very serviceable small-flowered Decorative sorts, while especially attractive is the broad ribbon border, near the bandstand and with a railway arch beneath, so that there is no great depth of soil. In this border King Albert, a large-flowered, plum-coloured Decorative sort, associated with the free-flowering Brentwood Yellow; Glory of Schiedam, a grand white Mignon variety, and numerous other sorts, combine to make a very striking and pleasing colour scheme. Several large circular beds are filled with Coltness Gem and Glory of Schiedam, while around the bandstand are bays of Barlow's Bedder and Kaiserin Augusta Victoria. In St. James's Park the Dahlias are one of the chief features, being confined chiefly to the borders around the entrance from Bird-cage Walk. Here are to be seen massive banks of many grand varieties, skilfully arranged and all flowering freely. Prestige, a Decorative variety with enormous blooms, biscuit-orange, darker in the centre, and very free-flowering, is one of the most effective, while other sorts which play prominent parts in this massed floral display are Radium, a glowing scarlet, Paeony-flowered variety; Queen Victoria, a white-flowered Decorative Dahlia; Orange Perfection, a specially fine, large-flowered Decorative sort; and Bishop of Llandaff, a lovely Charm Dahlia with crimson-scarlet blooms and rich, dark foliage; it is backed by massive plants of the popular large-flowered Decorative variety Jersey Gem. Opposite the border containing the above is one in which Mignon varieties such as H. J. Jones, bright yellow; Princess Marie José, bright pink and free-flowering; and Glory of Schiedam, are skilfully arranged with such striking sorts as Ladybird, Pleasure, a Single variety, deep rose-red with a purple central zone; and Andreas Hofer, one of the few really decorative Cactus varieties for general purposes, with salmon-pink petals shading to cream at the base. The formal beds in front of Buckingham Palace are now ablaze with masses of the invaluable Coltness Gem, while in Hyde Park the annual display of Dahlias in the long border near the entrance to Kensington Gardens is again attracting many hundreds of visitors who seldom have such an opportunity of inspecting so representative a collection. The border is edged with Mignon varieties, outstanding among which are Midget, Moonbeam, Powerscourt Yellow, and H. J. Jones, in various shades of yellow; Harold, crimson; Glory of Schiedam, which would appear to be invaluable; Roy, velvety-crimson; Coltness Gem and Coltness Gem Scarlet, and Etna, crimson-scarlet. Among the taller sorts, which form a massive and glowing bank behind these, the most striking sorts at the present time—many have not yet attained their full beauty—are Thomas Hay, V.M.H., clear lilac; Blanche Rowland, orange-scarlet; Hyde Park Beauty, glowing rose; King Tut, dark purplish-crimson; Delightful, bronzy-yellow, white-tipped; Delice, rich pink; Mrs. Wheeler Bennett, yellow; Mrs. Ethel Smith, pale primrose; Henry Carleé, white; and Grace Curling, white and rose-pink, all large-flowered Decorative sorts; together with Seafield, a lovely Star Dahlia; Clematis, rose-lavender, and one of the most beautiful of the large-flowered Single varieties; Tuskar, a striking Collerette; and Argos and Andreas Hofer. A really grand display and very educational.

Commander Prince Shimadzu, I.J.N., M.V.O.—Prince Shimadzu, well known to Orchid lovers in this country, is President of the Japanese Floral Society and the Japan Dahlia Society as well as a member of the Committee of the Imperial Orchid Society of Japan. He is also a member of the Royal Horticultural Society's Orchid Committee. His chief horticultural interest lies in the raising of hybrid Orchids, and he has made this his hobby in his home in Japan, where several plants have already been named by him. His keen interest in his hobby is shown in the following story relating to one of his latest hybrids. Some years ago he crossed Dendrobium nobile with D. Felicity—which is itself a hybrid between D. Rainbow and D. Wardianum—of which he was able to raise several hundred seedlings. These reached their flowering stage last spring, but before that long-looked-for period arrived he had to leave Japan to take up his new appointment in London as Naval Attaché to the Japanese Embassy. Being afraid that he would be denied the opportunity of seeing this hybrid flower for some years to come, he decided to take three plants on board ship with him, through the Indian Ocean. As the voyage progressed the buds expanded and eventually they opened successfully on February 5, 6 and 7, in the middle of the Indian Ocean. He accordingly named the hybrid Dendrobium Indoyo—the Japanese name for the Indian Ocean. He brought his plants to England and, having no suitable place in which to keep them during the cold weather experienced in this country after his arrival, he presented them to Sir Jeremiah Colman, Bt., Chairman of the R.H.S. Orchid Committee, in whose collection at Gatton Park they now are.



COMMANDER PRINCE SHIMADZU, I.J.N., M.V.O.

"Journal" of the South-eastern Agricultural College.—The *Journal* of the South-eastern Agricultural College (University of London), Wye, Kent, for 1929, edited by Dr. S. Graham Brade-Birks, has just been published. It consists of two hundred and twenty-three pages and is mainly devoted to the consideration of the scientific work which is being carried out at Wye, although the Editor, in his notes, expresses the regret—and in this we entirely agree with him—that pressure of space prevents the publication of much that would have been interesting. The contents are naturally very varied and deal with many branches of the application of science to problems of agriculture and horticulture. A detailed account is given of the work of the Department of Agriculture. It deals with a number of field trials and experiments carried out in 1927-8. These include Potato manurial trials; an enquiry regarding Hops as a manure for Potatos; Sugar Beet variety and manurial trials; manurial trials for Swedes, Thousand-headed Kale, Mangels and Oats; experiments with temporary leys; pasture manures; permanent grass seed mixtures, and a pig-feed trial. A special section deals with weather records and the effect of climate on crops, and a summary of the year's progress on the College Farms, with a map, is given. The work of combating diseases of plants is dealt with by Mycologists, Entomologists and Chemists. The Agricultural Economists contribute an interesting article entitled "Another Clay Farming Episode." Room has been also found for an article on the rôle of photography as an aid to the examination of cattle foods. Other contributions include soil profile, precision records on Wheat, the reductase test, and millepedes and centipedes in relation to horticulture and agriculture. The article on "A Simple Diagnosis of the Plant Lice of Ribes and Apple," by Prof. Theobald, with coloured illustrations of the pests; and the one on the Apple Capsid and the Common Green Capsid, will be found of particular value to gardeners and fruit growers. Residents in Kent and Surrey may obtain copies of this useful publication for 4s. 6d. (post free), but those not resident in these favoured counties must pay 8s. 6d. (post free). Applications for copies should be made to the Secretary, South-eastern Agricultural College, Wye, Kent.

Scottish Pansy and Viola Association.—Major R. S. Milne, the President, presided at the Annual Meeting of this Association recently held at Glasgow, when the following awards were made:—Certificates of Merit: to Violas Dr. R. M. Craig and Nessie Douglas, shown by Mr. John Douglas, Uphall; Viola James M. Whyte, raised by Mr. William Whyte, Neilston; Fancy Pansy John Gourlay, raised by Mr. Harry Robertson, Kelty, Fife; and Mignon Dahlias, Crimson Gem and Pink Gem, of the Coltness Gem type, shown by Mr. Alex. Cochrane, Fauldhouse. A First Class Certificate was awarded to a seedling Chrysanthemum named Robert McAlpine, raised by Mr. Alexander McAlpine, Tollcross, Glasgow; the colour may be described as brick-red, and is quite distinct. At the business meeting Mayor Milne was re-elected President, and Mr. W. Dobbie, Schoolhouse, Renfrew, Hon. Secretary and Treasurer.

Horticultural Exhibition at Verviers.—A horticultural exhibiton is to be held at Verviers, near Spa, in Belgium, on the first three days in September. It will take the form of a celebration of the seventy-fifth anniversary of the foundation of the Verviers Royal Agricultural and Botanic Society, founded in 1854, and will be held in conjunction with the exhibition of the Belgian National Dahlia Society, and with that of the local allotment society. Verviers is a finely-built town of 100,000 inhabitants, and the exhibition is likely to attract a goodly number of foreign, as well as Belgian, visitors.

Weather in the Arnold Arboretum.—It is not in the British Isles alone that drought has affected gardens, for the *Bulletin* of the Arnold Arboretum dated July 26 conveys the information that "the scarcity of rain is affecting vegetation generally; the foliage on some of the shrubs is wilting, the trees, however, show little or no effects, but copious rains are badly needed." Of peculiar interest is the note concerning Heather—now so popular with us. The *Bulletin* states that: "Heather or Ling (Calluna vulgaris) in its various forms is blossoming in the Shrub Garden and elsewhere. Among low-growing, ground-covering evergreens none is more beautiful than this plant so dear to the heart of every Scotchman. There are a great many forms, distinguished by their habit of growth, and colour of blossoms, but one and all are equally lovely. The erect, leafy shoots bear in abundance axillary flowers which vary in colour from pure white and pink to crimson-purple. Heather is a sun-loving plant, but in these latitudes, unless favoured by good snow-falls it, like all low-growing evergreen ground-covers, needs protection from the latter half of January until April. Boughs with salt, hay or coarse herbage sprinkled over make a light and efficient protection. Heather is an acid-soil plant which does not transplant any too well from open ground and should, therefore, be grown for the purpose in pots. It is easily propagated by cuttings taken from August to mid-September and inserted in sand under glass. If allowed to grow naturally it becomes straggling and hummocky and is apt to die in patches; the same obtains when growing in the shade. To avoid this the Arboretum practice is to shear it each spring, thereby keeping it low and mat-like. In the British Isles, particularly in the northern part, in Scandinavia and elsewhere the Heather covers enormous areas of moorland and mountainside and in August presents one of the floral spectacles of northern regions. Although the plant covers vast areas in Europe and extends far into northern latitudes, Heather, unlike many other boreal types is not known to grow on this continent. About the middle of last century it was reported from Nantucket and later from several other isolated places in New England. Close investigation, however, has shown that in each instance there is every reason to believe it had been introduced. In fact, to-day, authorities have no hesitation in saying that so far as the discoveries in New England are concerned one and all are simply escapes from cultivation."

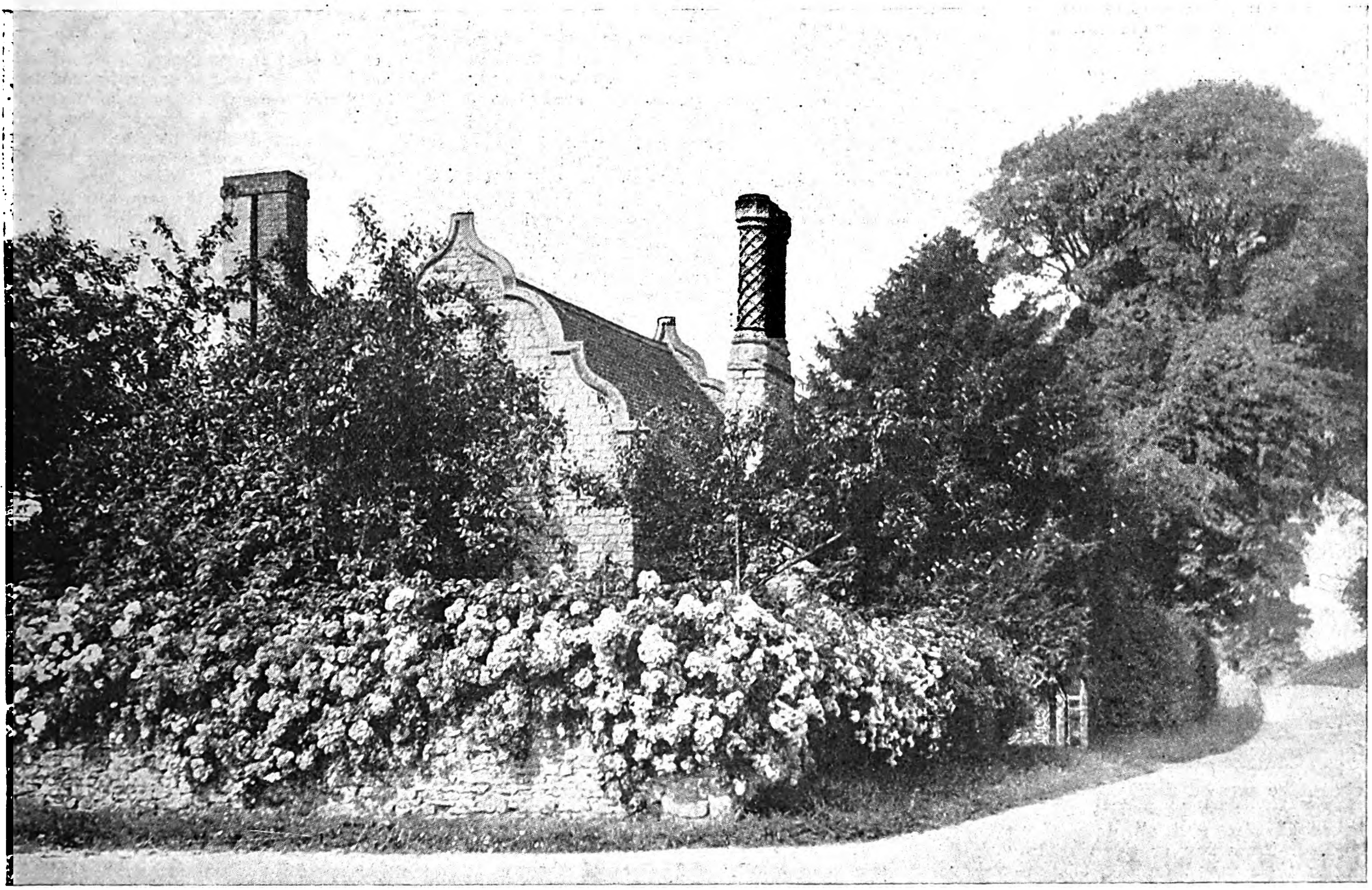


FIG. 72.—ROSES AT WARREN COTTAGE, LONGWORTH.

Roses at Warren Cottage, Longworth.—The Berkshire village of Longworth, in the Upper Thames Valley, is not much known, except for the Oxford Roses which are grown there by Mr. George Prince. The illustration (Fig. 72) shows Mr. R. Painton's home at the entrance to the village from the west. The soil is very sandy and light, but Roses thrive in it, doubtless on account of the moist sub-soil. Roses of the rambler type normally make growths of ten to fifteen feet and more, but only the best of these are annually pulled over the wall and tied in for the following season's display. The Roses on the wall are White Dorothy, Crimson Rambler, Dorothy Perkins, American Pillar and Hiawatha.

Appointments for the Ensuing Week.—MONDAY, AUGUST 26: Harrogate and District Horticultural Association's meeting. TUESDAY, AUGUST 27: Royal Horticultural Society's Committees meet; Royal West Renfrewshire Horticultural Society's meeting. WEDNESDAY, AUGUST 28: Southport Flower Show (three days); British Gladiolus Society's Exhibition (three days); *Daily News* Sweet Pea Show (three days); Newcastle and District Horticultural Society's meeting. THURSDAY, AUGUST 29: Royal Oxfordshire Horticultural Society's Exhibition; Sandy Floral and Horticultural Society's Exhibition; Dundee Horticultural Society's Show (three days); Leeds Paxton Society's visit to Southport Show. FRIDAY, AUGUST 30: Dunfermline Horticultural Society's Annual Exhibition (two days); SATURDAY, AUGUST 31: Falkirk Horticultural Society's Exhibition; Leeds Paxton Society's lecture.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Aphis rumicis.*—It is singular that a species of plant louse, which is generated on the common Dock, should this year have infested Turnip crops in Yorkshire. I received the following communication from a gentleman residing near Richmond in Yorkshire:—"I send you specimens of the insect that has committed so much injury to the late-sown Turnips this year. These Turnips that were put in previous to May 24 have escaped. All my Turnips had farmyard manure applied, as well as 2 cwt. of guano. One part had bones instead of guano, which was much worse than the guano. The insects are invariably under the leaf. I have not, or rather, I did not, find any to-day at the root. There are now few left. I had some difficulty to find a good sample for you, but I fortunately met with some winged specimens. I had nine acres of the Hybrid Turnips destroyed last year." In a former letter to the Secretary of the Royal Agricultural Society, the same gentleman stated that "hundreds of acres are almost destroyed by this fly in the North Riding of Yorkshire and Durham"; and he added, "I have five acres quite destroyed and several more acres are more or less injured." Mr. F. Walker says that A. rumicis is hatched on the Dock, and then migrates to the Bean, Pea, Thistle, Chenopodium, Laburnum, Broom and Furze, but it is a new plague, I believe, in the Turnip field, as the only species hitherto known to injure the Turnip crops were Aphis Rapae, A. dubia, A. Brassicae, and A. Floris-Rapae. I believe A. rumicis was very abundant last year in the north of England. About the beginning of this month there were myriads of this species in the neighbourhood of London, and on the evening of the 1st, they were seen in prodigous numbers near Highgate, and soon covered the plants in the gardens, causing considerable mischief to the Dahlia buds. They died, however, in two or three days, after some very heavy showers. There is still a great deal to be learnt about these remarkable insects, for species which at one time seem to be attached to one plant suddenly affect others, and this may be the cause, in some instances, of their sudden death; as the sap of the Dahlia, for instance, may poison a species which was bred on the Dock, whilst the Turnip may be wholesome food for it. Electricity also appears greatly to influence the appearance and disappearance of the aphides. *John Curtis, Gard. Chron., August 26, 1854.*

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Brassias.—Specimens of the distinct and sweetly-scented Brassia Lawrenceiana and its varieties are now producing their flower spikes and require plenty of light to assist in completing their new growths, although the foliage is quickly injured if strong direct sunshine is allowed to reach it during the hottest part of the day. The plants should be supplied with ample moisture at the roots each time the compost appears dry, until the new bulbs are matured, when a smaller quantity will suffice to keep the plant in health, although long periods of drought are not advisable at any time. If the plants are not in robust health, the flower spike should be removed so soon as the blooms expand. The more robust growers such as B. verrucosa and B. brachiata are growing freely along with the Cattleyas, and will require generous treatment, and moist surroundings to keep them growing sturdy; where the roots are well established in the compost, ample supplies of water will be needed each time they appear dry. As the growths advance, more light and air should be allowed to reach the plants. Scale insects should be sought for and destroyed when detected.

Miltonias.—Specimens of this free-flowering group of decorative Orchids which produced a brilliant display of flowers earlier in the season, have now commenced to grow again, after a short rest. The young growths should be examined frequently as the centre leaves often adhere to each other and require some help to get free. A smooth instrument, similar to the handle of a budding knife, may be used, for if these leaves are not separated in good time deformed growths will occur. Small thrips often infest the young leads and the axils of the leaves, and quickly disfigure the foliage if allowed to remain. Should any be found the leaves should be dipped in an approved insecticide, tilting the plants afterwards to allow the moisture to drain away. Any plants that require repotting may safely be dealt with when the growths are a few inches high and just as fresh roots are pushing from the base. Over-potting should be avoided as the fine roots do not easily penetrate a large mass of compost. Well-drained pots or pans should be used, while two parts of Osmunda fibre, one part Sphagnum moss, with a few broken Oak or Beech leaves, may be used as a rooting medium, and should be pressed firmly about the roots. Any specimens that have lost their centres should be divided and all decayed portions removed, retaining two or three bulbs behind each lead; these may then be potted separately or re-made into large specimens, as desired. Smaller plants that require more room may be potted on without greatly disturbing them, but all sour compost should be removed. Water should be afforded very sparingly until the roots are working freely in the new compost, when a larger quantity will be needed. The plants thrive well during the autumn and winter months in the intermediate house.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

Strawberries.—The general planting should be completed without delay, so that the plants may become firmly established before the winter. It has been proved by Mr. Staniland, Long Ashton Research Station, that root activity practically ceases by the end of September, and does not recommence, to any appreciable extent, before March or April. Recently planted Strawberries should be well supplied with moisture at the roots during dry periods, and the early removal of all runners is desirable to divert the energy of the plants in the proper direction. The old plantation should receive an occasional hoeing to form a mulch of loose soil and to kill annual weeds. There should be no deep cultivation of the soil, such as digging, but the free use of the cultivator and the drawing of the soil up towards the base of the plants will greatly benefit the new roots which are now being emitted from the collar of the plants.

Raspberries.—Owing to the very dry season the young canes have not attained the average height this year. This deficiency may be made good, to some extent, even now, if all the old fruiting canes are cut out, and only a sufficient number of the young ones retained, and loosely tied in to their supports, all superfluous canes being pulled out. Then give the plantation a thorough soaking of liquid manure made from the drainings from the cow byre. The variety Lloyd George, might justly be termed a perpetual-bearing variety, as plants that were grown and treated for summer fruiting are now showing large terminal trusses of fine fruits, so that the application of liquid manure to such plants would be of the greatest benefit. This variety is undoubtedly the best autumn-fruiting Raspberry we have. The berries are very large, bright red in colour, and of good flavour. The Hailshamberry is not so large a fruit as the former, but the flavour is better and it produces ripe fruits over a long period.

Loganberries.—These have now finished fruiting, and the old canes should be cut out without delay. The growths should be loosely but securely tied to their supports. If the fence is formed of wire netting, the young growths of the Loganberry should be laid in rather thinly, at about a foot apart, and tied securely so that they may ripen up their wood for next year's fruiting. Besides, any such work accomplished now will not only be of the utmost benefit to the plants, but will help considerably to forward the winter's operations.

Propagation.—The propagation of the Loganberry is quite simple; but to perpetuate the best qualities of the plants it must be increased vegetatively, *i.e.*, by root-cuttings, or by layering. The latter method is that which is generally practised, and this is the time when it is done. All that is necessary is to bend over and bury, three or four inches deep, the growing tips of the current season's canes. In common with all the Bramble family, these tips, when buried, will form a fleshy, bulb-like growth, emit roots in quantity, and eventually shoots. These layers are severed from the parent cane in November, and planted in nursery rows for a year or two before being set out in their permanent quarters.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Strawberries.—Plants from which the supply of runners for forcing is to be obtained should be put out the year previous, upon the best prepared ground in the garden, fully exposed to sun and light, and in no way connected with the plants intended to yield a supply of fruits. If well mulched and watered and relieved of all flower spikes so soon as these are detected, strong runners will be produced in abundance. Strong runners layered from maiden plants and not required for forcing should be ready for turning out this month; mulched and watered and kept free from runners, they will soon establish themselves. Newly-layered or potted plants should receive careful hand watering, and not too frequent overhead waterings, unless the water is warm and soft, as the young foliage burns and soon becomes hard and spotted. Some growers object to the use of stimulants, and if large pots are used, stimulants are not so urgently needed, but much depends on the quality of the compost. As a rule, pot plants should be moderately stimulated from the time the roots are abundant until the foliage shows signs of maturity, when clear water will suffice all through the dormant period. Every effort should be made to grow sturdy plants as varieties have degenerated so much, and the weather has been more favourable to the spread of mildew than the production of strong healthy growths. Constant change of ground and the introduction of fresh, healthy stock, and spraying against green-fly are the best remedies for degeneration, especially with those varieties which fall away more rapidly than others.

Figs.—Early trees from which the second crop of fruits has been gathered, must be thoroughly cleansed and well watered where the roots have been kept in a semi-dry condition. It is yet early to commence pruning, but all weak growths and those which have performed their work may be thinned out to admit light to promising shoots. These trees, like those grown in pots, must be divested of all intermediate fruits that will not ripen by the middle or end of August. When trimmed and cleansed, the trees should be well hosed with clear water the following morning, especially if strong insecticides have been used. Successional trees still giving a few fruits will require abundance of air by day and a free current by night, otherwise the ripe fruits will spot unless a little artificial heat is used. Where fire heat has been cut off, all watering should be done early on fine mornings, and, the trees being cleansed, syringing may also be dispensed with—damp being the greatest enemy—except on bright mornings. Trees in late, cold houses, now in full bearing, require very similar treatment, barely damping the floors except under promise of a bright day. As these trees carry but one crop, the shoots should not be pinched, as second growths rarely ripen. The shoots should be kept thin, upon the extension principle, and when they reach the extremities, they may be cut out to make room for others. The secret of success is to keep the young growths short jointed, by no means gross, and evenly distributed; all trees showing suspiciously strong shoots should be root-pruned by the middle or end of October.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Perpetual-flowering Carnations.—Where the plants have been outdoors for the past two months, the time has arrived for placing inside, for preference in the house in which they are to flower. But before proceeding with this work the structure should be well cleansed by scrubbing all glass and woodwork, while the walls should be cleaned and lime washed. There is a danger of the plants being attacked by rust after this date, even where means have been taken to protect them from heavy rains, as the excessive moisture caused by heavy dews is almost sure to lead to an attack, and the only sure way of checking it is to keep the foliage fairly dry. Plants that were propagated early and have filled their receptacles with roots should receive a light dressing of some approved fertiliser specially compounded for Carnations. My experience teaches me to feed the plants little and often, rather than use large doses at one time. Where the former method is practised the growths will keep firm and the flowers will open more kindly during the dull months of the year. Successional batches should be potted on as they require it.

Chrysanthemums.—Plants that are being grown to produce large blooms should have all their buds secured by this date, and in some cases a fortnight earlier. When the buds are secured, means should be taken to prevent them being damaged by earwigs; there are several means of trapping these pests and probably one of the best is to place short pieces of Beanstalks on the plants and blow through them into a jar containing some insecticide each morning. Continue to feed the roots with some approved fertiliser, but here again I recommend using manures in small quantities, rather than less often and in a large quantity. Once in ten days or so is often enough to give dressings, but, of course, the grower must be guided by the weather and by the condition of the plants. All growths should be made secure, otherwise they may be broken out by strong winds, with the resultant loss of many flowers. Keep a watch for mildew and on its first appearance take immediate steps to check this by dusting the foliage with flowers of sulphur, care being taken that this reaches the underside of the foliage. Decorative and single varieties that are being grown to produce disbudded flowers should have all side growths and buds removed by the second week in September, to produce flowers for early November shows; other treatment should be given as recommended for large blooms.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Runner Beans.—These are now bearing well and the tips of the shoots may be pinched out, as this will help to swell-up the young pods. A dusting of some approved fertiliser round the rows will also afford assistance. In dry weather and especially on light soils, a good soaking of water should be given, but not sufficient to chill the ground, or the young Beans will drop. Late-sown Beans will now be coming into flower and will need some attention. These should be examined to training, otherwise the growths will become crowded. Mulch round the lines with short litter.

Autumn Onions.—For spring planting a sowing should be made between this date and the 21st of the month. Tripoli varieties are suitable for this sowing, but Ailsa Craig and Cranston's Excelsior withstand the winter quite well in some districts, although a January sowing and the seedlings pricked out into boxes and planted in April will give better results. Giant Zittau is a good Onion and does well everywhere. Prepare the ground and sow the seeds in the usual way.

Cabbage.—To secure crops for spring cutting, seeds may be sown now so as to have good established plants for planting out by the end of September or early October; Harbinger and Flower of Spring are two varieties that can be depended upon.

Sugar Corn.—Sugar Corn or Sweet Corn has now attained a fair height and for the sake of safety it is a good plan to stake each plant; the foliage is heavy and the plants are easily broken by wind and rain. Mulch the plants, supply them with plenty of water and use the cobs at a suitable stage.

Potatos.—As the Potato haulm turns colour the crops should be lifted at the first suitable opportunity. Choose a dry day for the work, so that the tubers will come out clean. Never leave the tubers exposed for long or they will become green and unfit for use.

Carrots.—Further sowings may be made now for supplying late tender roots; a fair sowing should be made, the one half lightly thinned and kept in the ground all through the winter for the supply of good Carrots in the early months of the year. The stump-rooted varieties should be sown as these grow quickly.

Endive.—A further sowing should be made for later planting. Run the hoe between the rows of earlier batches to keep the soil loose and check weeds.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Bulbs.—Early Roman Hyacinths, Narcissi, etc., for Christmas flowering should be potted or boxed as received, the earlier the better. Hyacinths and Tulips relish a small proportion of old animal manure in the soil, which should be of a light nature, but Naricissi seem to resent such and prefer leaf mould alone—with perhaps a little bone meal should the loam be of a poor nature. After potting or boxing, plunge them under a thick coating of ashes, in the open air for preference, but in a position where heavy rains will not reach them.

Strawberries.—Runners laid down either in pots or the open ground, should now be ready for planting in their permanent quarters. For an early crop the best position possible should be chosen, on a south border, but for second-early or late crops any good land will suit. Unless the ground is very rich, manure must be added, but should not be buried too deeply. Tread the soil very firmly before and after planting, and see that the plants in pots are well soaked at the roots before being turned out. One foot apart, in rows two feet distant, should be a suitable distance, but if the plants are not very strong double rows may be planted one foot apart, with two-and-a-quarter feet between the pairs. Should the weather be dry, the runners should be well watered after planting; all runners should be stopped at an early stage and the ground kept loose on the surface by frequent use of the Dutch hoe, so that good crowns may be built up before growth ceases. John Ruskin is the best all-round variety for early work in the north.

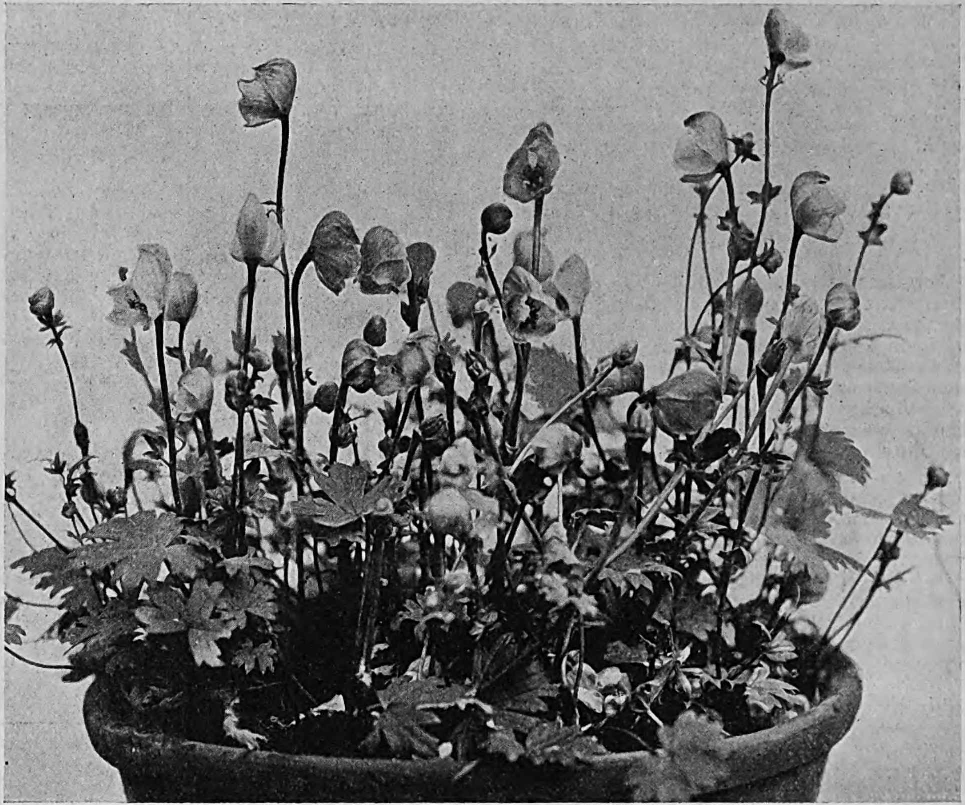


FIG. 73.—ACONITUM CORDATUM.
(see p. 147).

Richardias.—Where these have been rested in their pots they should now be overhauled, the drainage renewed where necessary and a good rich top dressing afforded. If quantities of small crowns are present most of these should be removed, only those likely to flower being retained. They may be kept in a cold frame until danger of frost makes housing a necessity. A thorough soaking with clean water should be given, as an ordinary watering is of little use after such a protracted drying. Stimulants should not be given until growth is free and abundant.

Chrysanthemums.—The flower buds of Chrysanthemums in pots are rapidly developing now and should be secured at an early stage if good flowers are to be obtained. Remove all side or basal growths as they appear. Earwigs are most destructive to the growing points of Chrysanthemums and should be trapped with cylinders of paper, short pieces of hollow stem, or pieces of moss placed at the tops of the stakes. Where room has been left for a top-dressing, this should now be given, using a compost similar to that for potting, and ramming it firm. Where the pots are full of roots, weak liquid manure may be given once or twice a week when the soil is wet. If leaf-miner appears, regular spraying with Quassia extract should keep it in check. September and October flowering varieties in the open should be given a good dressing of an approved artificial manure; a tablespoonful to each plant, hoed into the surface, should prove beneficial.

Mignonette.—Seeds should be sown to raise plants for spring flowering in pots. They may be sown in four-inch pots filled with a compost of loam, cow manure, lime-rubble and sand, and thinned out later to four or five plants, but they are quite easily transplanted, if ordinary care is taken during and after the operation, so that a pan filled with a lighter compost may be used in the first instance, pricking the seedlings out later into four-inch pots in the proper compost. Good drainage is essential at all times, and cool treatment likewise, if clean, sturdy plants are expected.

Cuttings.—Where large quantities of bedding plants are in demand, the present is the most suitable time to raise stock of them. Zonal Pelargoniums, Lobelia, Ageratum, Heliotrope and many other subjects should be placed in boxes of light sandy soil with a layer of pure sand on the top. Pelargoniums root best out of doors in full sun, little water being necessary. The others are best rooted in a close frame shaded during the day, with liberal ventilation at night until growth commences, after which they should have all the air and exposure possible. Keep the growths short by pinching, to encourage the formation of stools, and remove them to a heated structure on the approach of cold, frosty weather.

Vegetables.—Seldom has the Onion maggot been more plentiful, and few plots have escaped entirely. The affected bulbs should be removed and at once consigned to the flames, or some other effective steps taken to destroy the maggots. Onions intended for long keeping should not be surface fed, but where they have been, the practice should now be discontinued. Keep the surface loose to admit air to the soil, and to help the ripening process. Thin out or transplant Lettuces, an early border being chosen at this late period, or where such is not available, cold frames should be used.

TREES AND SHRUBS.

CYTISUS ARDOINII.

CYTISUS KEWENSIS, understood to be raised through the hybridisation of C. albus and C. Ardoinii, is an established favourite for the rock garden, and is universally admired when it is seen trailing over the rocks and giving a wealth of its delightful cream-coloured flowers.

One of its parents, C. Ardoinii, is far from plentiful in gardens, and it is so beautiful that it should find a welcome. It comes from the downs above the Mediterranean, where, we are told, the goats crop it so severely that it does not produce seeds. In the garden it is not subject to the ravages of these animals, and appears to have no enemies to destroy it. It has a charming, prostrate growth, but not really of strong trailing habit, and is, therefore, more suited for the choicer parts of the larger rock garden or for the small one than its hybrid. It likes a sunny place, and is especially pretty planted so as to lie over a large stone, where its branches, plentifully clad with their bright yellow flowers, are shown to advantage. It is also suitable for planting in a sunny retaining wall, and one of the best plants of C. Ardoinii which I have ever seen was growing in such a wall. Its flowering period is given as June, but this year it came into flower in very early May. It is increased by layers or cuttings. *S. Arnott.*

RUBUS DELICIOSUS.

THIS free-flowering Bramble from the Rocky Mountains probably bears the finest flowers of all members of the genus Rubus and a large specimen of it makes a most attractive feature of the garden from the month of June onwards. It is amazing how the Rubi thrive even under conditions of apparent poverty of soil, and R. deliciosus, like its congeners, is not particular as regards soil but likes a sunny position.

As an isolated example, and where it has ample room for development, it is a decided success and needs little attention beyond removing so much old wood as possible immediately after flowering, to encourage the development of current season's growth. Propagation may be effected by means of cuttings but it does not root quite so freely as some other plants of this class and layering is a surer method. *A. M. W.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

THE problem of making a choice among the vast number of new species introduced to this country during the last forty years is indeed a difficult one. Even if it has been judiciously solved, one is often unable to forecast the size to which some of the newcomers may attain, and the space they may claim for due development. The case of Rhododendrons is a simple one, for they can be transplanted at any age and of any size owing to the splendid balls formed by their roots; but the removal of other shrubs entails greater, sometimes insuperable difficulties. I hesitated long before deciding how to deal with a conflict which time had brought about between Pieris formosa and Hamamelis mollis, each over sixteen feet high. Each is the choicest of its genus, but each was interfering with the beauty of the other. At last I sallied forth a few days ago axe in hand and felled the Witch Hazel, feeling very like an assassin as I did so.

Among herbaceous plants not so commonly seen in gardens as their merit would warrant, three species are at their best in August, and, invariably attract favourable notice from visitors. Houttuynia cordata does not appear under that name in the Kew *Hand List*, so it is possible it has received another title. It is described by other authorities as a North American bog plant, but here it thrives vigorously and spreads rapidly by subterranean suckers in ordinary garden soil. It belongs to the Piperaceae or Pepper Order, and holds its blossoms stifly erect at a height of about eighteem inches among dark green and bronze heart-shaped leaves. The tiny flowers are closely packed in cylindrical spikes nearly an inch long, surrounded by four, sometimes five, pure white bracts which look like part of the blossom.

Stokesia cyanea—Stoke's Aster—is another North American perennial, growing some two feet high, but beginning to open its large flowers, borne on a branching stem, long before it reaches that stature. The flowers are of a rich blue-purple hue with a white centre.

Berkheya purpurea is another Composite, formerly known as Stobaea. It is a South African native, but is perfectly hardy here, no whit affected by the late, trying winter. It holds its handsome flowers in clusters on stems two feet high; they have pale purple or white rays round a dark purplish centre and measure about three inches across. The whole plant—winged stems, leaves and involucre—is set with white spines which give it a very distinct appearance.

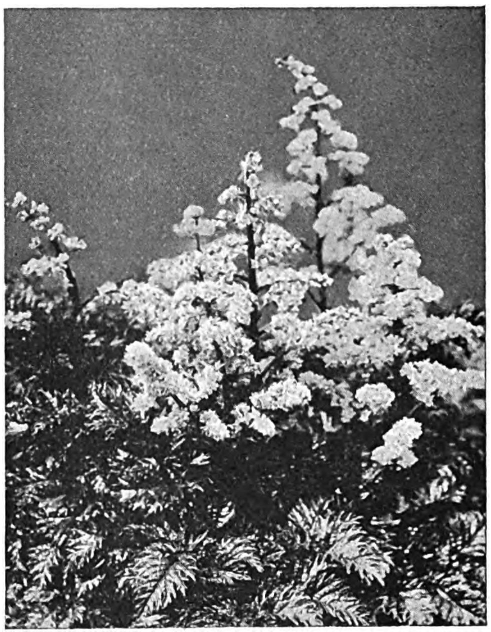


FIG. 74.—ASTILBE CRISPA.

Some herbaceous species of Spiraea are so handsome that one would be unwilling not to have plenty of them, but they are troublesome neighbours for less robust plants in a mixed border, not only spreading into huge clumps, but scattering their seeds far and wide. Such species as S. palmata, S. Aruncus, S. lobata and S. camtschatica are never seen to more advantage than in the wild garden, woodland and by the waterside. Their place in the flower garden may be taken with much advantage by the lovely varieties of Astilbe which have been produced in recent years, and which are often supposed to be a form of Spiraea, whereas they belong to the Saxifrage Order and Spiraea to the Rose Order. This new race of Astilbe is reputed to have originated as a hybrid between Astilbe Thunbergii, and Spiraea astilboides. If that is authentic, it is a remarkable instance of a cross between two plants of different Natural Orders.

Very different in height and habit from the shrubby Spiraeas is S. decumbens from Central Europe. It never grows more than nine inches high, but spreads itself along the ground. We have it here planted high on a retaining wall, a situation which might be thought unsuitable for one of a moisture-loving genus; but it has formed a curtain six feet broad, and is a very pretty object when closely set with circular corymbs of white flowers in June. *Herbert Maxwell, Monreith.*

NOTES FROM A WELSH GARDEN.

DIERAMA PULCHERRIMUM is such a delightful plant throughout the holiday month that those who grow it and miss its flowering must regret having lost one of the most enchanting pleasures of the year. The strain I have has clear rose-pink flowers and very rarely gives a seedling of any other colour. The arching wands, each with nine or ten of the elegantly drooping racemes, are fully five feet tall, and a large group of this excellent plant will give us fully six weeks of its colour and matchless grace. The severe frost of last winter left D. pulcherrimum quite uninjured, even a crop of self-sown seedlings coming through unscathed.

The first of the late-flowering Gentians to bloom here is always a pure white form of the upright growing G. asclepiadea. This is almost over before a deep blue form of the same type adorns its rigid, eighteen-inch spikes with its splendid flowers. Flowering as it does from late July, long before the four-feet stalwarts of the woodland have begun to colour, this is such a valuable and handsome plant that one is surprised it is not more generally grown. A clump or two of a sapphire-blue G. Pneumonanthe, with the delicate silvery-rose of Anagallis tenella flushing the ground round about them, is always attractive near the water at this season.

Sedium pulchellum's rosy-lilac having been invaded by an enterprising bit of Wahlenbergia hederacea, another most harmonious association, in regard to both colour and the nature of the two plants concerned, is at once suggested. Again, the light and airy branches of Lythrum alatum, all ablush with their rosy-purple flowers, might have a worse colour companion than Parochetus communis, whose rich and vivid blue is dappling the fresh green carpet at their feet.

Astilbe simplicifolia, which is the last word in dainty elegance, is one of the those happy little plants which need fear no rivals, not even among some of the hybrids raised from it, beautiful as some of these undoubtedly are in poise and colour. But the Japanese species, if it stands alone at its own time, is preceded by a not less attractive midget, A. crispa. The origin and status of this engaging plantlet I have not yet traced and the Kew *Hand List* does not include it, but the few nurserymen who do are surely in error in classing it as a variety of A. simplicifolia. However, A. crispa (Fig. 74) with its tight little bundle of deeply-cut, crisped, dark-green leaves, hard and leathery as the varnished foliage in a Victorian milliner's window, with its three-inch pyramids of milk-white foam and a Turnip-like root that defies dissection, is a Lilliput of unqualified fascination. It is, moreover, as hardy as an Oak and a most reliable bloomer.

Among the bigger things of the waterside is Spiraea camtschatica which has excelled itself by towering to eight feet, the froth-white plumes being more telling against a dark woodland background than those of the rosy-tinted varieties. Almost equalling it in height are the thick-set, bright yellow spires of Senecio Veitchianus, but from the point of view of colour this great Groundsel must yield place to the splendour of S. Clivorum whose broad-rayed orange suns might rival those of Mutisia decurrens which are blazing with such fiery vehemence in another part of the garden. Astilbe Davidii is among these brookside stalwarts, its virulent colour having the white spikes of Cimicifuga racemosa and others to cool its ardour. An abundance of green also helps to assuage the tyranny of this noble Astilbe's colour and among the leafy things Petasites japonica does not fail to assert its dominance. That this is a dangerous subject to meddle with may be admitted, but there is, to my mind, a symmetry and refinement of line and texture in the monster leaves of this huge plant which are more appealing than anything the Gunneras or Rheums possess.

That cheerful little shrub, Kalmia glauca, seldom fails to produce a late-summer crop of its bright rose-pink blossoms, the only one of its genus that ever does so here. Phyllodoce empetriformis will do the same thing, a concession which only further enhances the value of two Ericaceous shrubs whose unquestionable merit does not seem to have been fully appreciated by gardeners generally.

Among shrubs of medium stature the Hypericums are always a reliable stand-by throughout the later summer. In the generosity of their large, rich yellow blooms, long season of flowering, and the ornamental value of their seed-capsules, often so brilliantly tinted with ruddy hues, they are always admirable. Perhaps the well-known H. patulum and its variety Henryi, H. Hookerianum and the hybrid H. Moserianum, are still unrivalled in their own way. But H. aureum, H. Leschenaultii (now regarded as a variety of H. Hookerianum), H. chinensis, which is on the tender side, and especially the very striking H. rubrostylum, are all shrubs of the first rank. The last-named, which is, I think, unique in the possession of crimson stamens, I first saw in that sanctuary of precious treasures, the Bodnant Gardens.

Desfontainea spinosa needs no eulogies. As an August-flowering shrub it stands alone, an object whose peculiar brilliance will not admit comparison. Regarding the hardiness of this wonderful plant (referred to by *B. O. M.*, p. 109) I can only state that several here, young and old, came through 32° of frost with scarcely any injury last winter. As for the "slowness of growth" referred to by the same contributor, I have not found this a "drawback," nor does the shrub seem unusually long in reaching the flowering stage. I have, for example, specimens raised from cuttings four years ago which are now nearly two feet high and these began to bloom in their third season.

One of the most promising late-flowering shrubs that has come my way for some time is Ceanothus Burkwoodii. This is, presumably, a hybrid, but it is evergreen, with much the appearance of C. Veitchianus. Not only are the inflorescences of good size and a rich violet-blue, but they are borne from July onwards into autumn. To all lovers of this attractive genus the coming of C. Burkwoodii must be regarded as an event of no small moment, and that the shrub is quite as hardy, if not hardier, than most of the evergreen species seems certain.

Hypericums in the rock garden are not less useful during later summer than the taller kinds are elsewhere. H. olympicum, always one of the most striking, can be relied upon to give a blaze of its lustrous yellow and H. o. var. citrinum in a pale, wan ivory is not less pleasing. This latter is so different in habit as well as colour from that usually sent out as H. olympicum that it might well be regarded as a species. There is (or was) an old plant of H. o. var. citrinum in the late E. C. Buxton's garden, with a woody base some three or four inches thick and it annually put up a sheaf of its elegant flowering growths to a height of nearly eighteen inches. These growths, with their very glaucous leaves, are always upright, as they are with my own plants. H. Apollinus is another lovely plant of upright habit, with beautiful silvery-grey foliage and very large, bright golden-yellow blooms. H. crenulatum is always faithful to its reputation for being a good late-season blossomer for a close-up position. If this winsome little plant cannot attain the peculiar fascination which the even smaller H. cuneatum exerts over some of us, it has a more tractable disposition. But H. reptans is undoubtedly the "pick o' the basket" among these trailing species and one of the best of all rock plants for any climate that is not too bleak for it. It is hardy enough, but it seems to dislike excessive wet, especially wet snow, and biting winds. Even so, once it covers a good space, and it will easily drape a square yard or two if conditions are suitable, this delightful species will put up with a vast amount of winter discomfort. Here its broad, dense mat of crimson stems and soft green leaves is adorned with its wonderful golden-yellow saucers, often flecked with red on the reverse, for nearly four months, and the fruit capsules, flushed with a glossy vermilion, provide any quantity of seeds. *A. T. Johnson, Ro Wen Conway, N. Wales.*

PLANTS NEW OR NOTEWORTHY.

NEPETA NERVOSA, Royle.

New border plants with blue flowers are certain of a warm welcome, be they annual or perennial. From the genus Nepeta one does not expect anything of outstanding merit. N. Mussinii is still the most useful, attractive and popular member of the family, in spite of the fact that several species and varieties are now available.

It is not claimed for N. nervosa (Fig. 75) that it is a first-class border plant, but a large bed bearing a perfect forest of stiff, erect-flowering stems, about two feet in height, ending in three-inch to six-inch long spikes of light blue flowers is a sight not be despised. During the hot weather I lost admiration for this species, but this was immediately revived when visiting Mr. Musgrave's garden, for there the plant had been given a shady spot and looked particularly handsome and much more happy and vigorous than I had ever seen it.

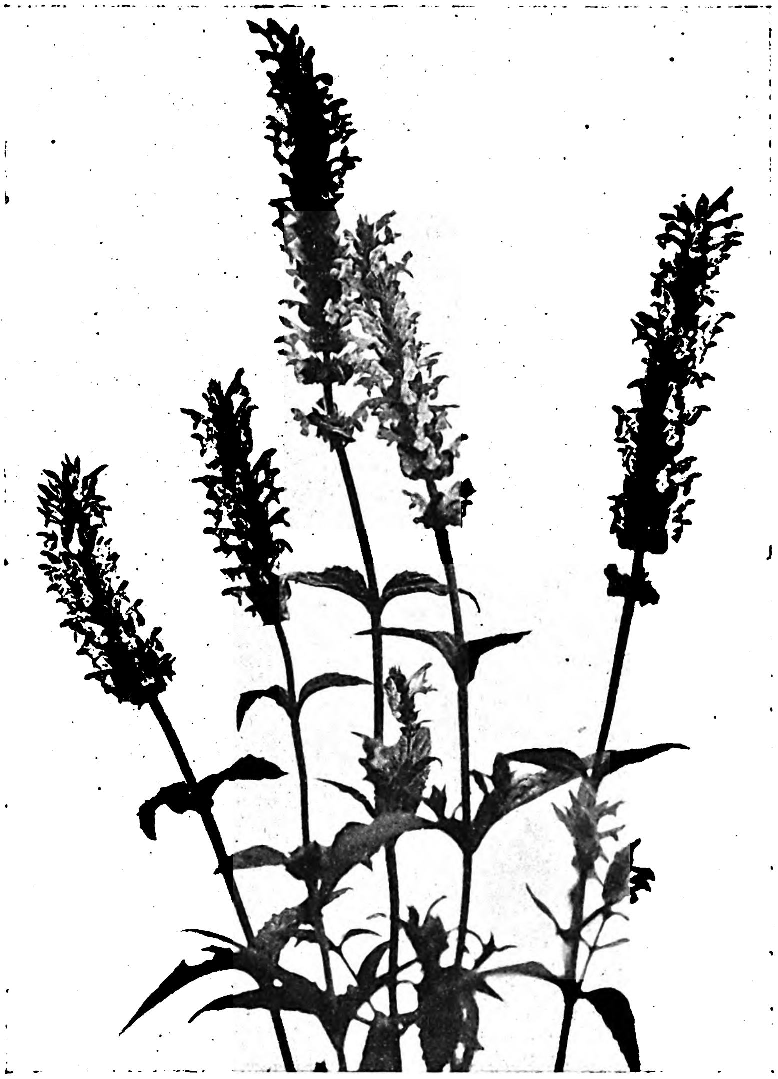


FIG. 75.—NEPETA NERVOSA.

While Nepeta nervosa misses being a first-class plant it is a species well worth cultivating: the flowers are of a clear, bright blue, produced in great quantities. The plant is perfectly hardy, only requiring good cultivation and plenty of water.

It may be propagated easily by division or from seeds and requires nothing in the way of staking. This species was included in the large collection of seeds sent by His Highness The Maharajah of Kashmir and is not found outside of that country.

A short botanical description of the plant is to be found in the second volume of Blatter's *Beautiful Flowers of Kashmir*, p. 192.

ACONITUM CORDATUM, Royle.

The species of Aconites in our gardens are fairly numerous and are all plants suitable for the herbaceous border or the wild garden, ranging from two feet to six feet in height. This newcomer is more likely to find a home in the rock garden and is well worth a place there, as it grows only six inches high. It is quite as free flowering as any of its taller relatives, with flowers quite as showy, and both light and dark forms are produced.

Seeds of this Aconite were received from Kashmir in the spring of 1928 and were sown in the open ground in March. The resulting plants are now flowering where sown, so that the plant has proved as hardy as our native A. Napellus. It is probably new to cultivation and may be described as a dwarf alpine, with tuberous roots; leaves, as its name denotes, heart shaped, incised or cut to varying depths, deep green, one-and-a-half inch to two inches wide; stems branched, carrying from three to five flowers each; very showy when seen in the mass.

It is a native of Kashmir, at high elevations, in grass lands and on the margins of woods. There is no figure of this plant recorded. At tab. 6092 of the *Bot. Mag.* A. cordatum, Royle, is cited as a synonym of A. heterophyllum.

I am informed from Kew that the plant now described and figured here (Fig. 73) is quite distinct from that species, and this will be readily seen on comparing it with the *Bot. Mag.* figure of A. heterophyllum quoted above. *T. Hay, Hyde Park.*

EDITORIAL NOTICES.

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HYBRID LILIES.

IN his enthusiasm for the Backhouse hybrids between Lilium Martagon and L. Hansonii, about which he wrote on p. 88 of *The Gardeners' Chronicle*, Mr. R. W. Wallace doubtless forgot for a moment that one swallow does not make a summer, and that the sight of a bed of a hundred spikes of these hybrid Lilies, four to six feet high, no two of them the same, does not belie the truth of the *dictum* that few of the many hybrid Lilies which have been raised from time to time are permanent improvements on either of their parents. Were it otherwise, Lilies of hybrid origin would be found as often in gardens, perhaps, as in the pages of *The Gardeners' Chronicle*. Only two, however—L. testaceum and L. umbellatum—can, as yet, be stated to have gained a permanent place for themselves where Lilies are planted.

None the less, Mr. Wallace's enthusiasm is comprehensible enough in the case of the Backhouse hybrids, and is probably based on surer grounds than that of a friend of the writer, who, after a visit to Luther Burbank's experimental Lily gardens in the closing years of last century, came home a firm believer in the future of hybrid Lilies and convinced that he had seen the beginning of a new era in their history. Burbank's experiments in the crossing of Lilies undoubtedly covered more ground than those of any worker in the field before or since his day. He laid every available species under contribution and hybridised them in such wholesale fashion that at one time he had a hundred thousand in bloom.* He grew them under field conditions and rogued them mercilessly; indeed, it was said of Burbank by a man who worked for him, that "he raises acres and acres of stuff every summer and then has 'em all dug up and burned." According to contemporary accounts, many of Burbank's hybrids were plants of such extraordinary beauty as to excite the enthusiasm of all who saw them; yet, except that such records of his activities as are available are of some value to other workers in the same field, Burbank's work on Lilies has had no practical result so far as gardens are concerned. Of the thousands of hybrid Lilies he raised, there may, perhaps, be one or two types still in existence; the rest have gone the way of such hybrids in general.

In searching for an explanation of the ephemeral character of so many hybrid Lilies we are driven to the conclusion that constitutional weakness has a major share in it. Whether this is due to some underlying cause whereof the significance is not appreciated, or to the happy-go-lucky methods usually pursued by so many would-be raisers of new varieties, is doubtful. It seems tolerably clear, however, that there may be some prospect of success along the lines followed, among others, by the late Mrs. Backhouse and continued by her husband, of mating species within the same sectional group—Martagon with Martagon, Eulirion with Eulirion, for example—rigorously rejecting all that do not pass a certain standard, and, if necessary, intercrossing selected examples again until the desired end has been reached. The process is a slow one and not for those who expect quick results; no two seeds of the same cross are sure to throw the same progeny, and if a desirable variety results from the union of two Lilies, it can only be propagated vegetatively, for seeds of hybrid Lilies cannot be trusted to breed true to type. There is no better example of the truth of this than L. testaceum, which, for all that it is the oldest known hybrid Lily in existence, and has countless generations behind it, refuses to reproduce itself seminally.

In reviewing the supposed qualifications of Lily species as possible parents of new varieties, it might be thought that L. pyrenaicum would make a good sire or mother; it has so tough a constitution that it never fails to welcome the early days of June in southern England, which means that it withstands all the trying changes of which the ends of our winters are capable. It ought, one may think, to mate readily enough with L. monadelphum or L. pomponium, but none of the three seems to have any affinity for the others. Another of the Martagon section which seems to have the making of a good parent is L. pardalinum, but although it mates effectively from a floral angle with both L. Parryi and L. Humboldtii, the hybrids are constitutionally weak. It is much the same when L. Parryi is used as a parent as, for example, in L. Parryi × L. Humboldtii, and L. candidum × L. Parryi. Each is singularly lovely in a totally different way, but frail to a degree. Both L. Humboldtii var. magnificum and L. Henryi have a robust constitution, but do not seem able to pass it on. The former behaves like a mule when mated with L. superbum, which is contrary to the hybridiser's ideas of what is meet and proper.

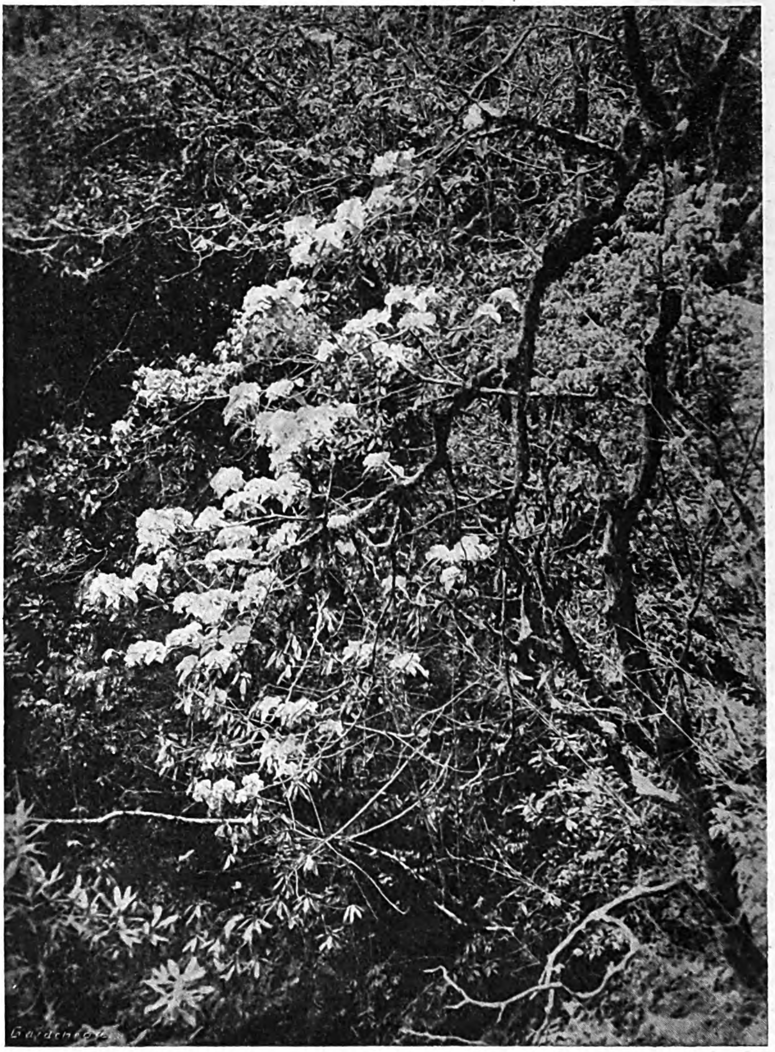

FIG. 76.—VIBURNUM WARDII IN FULL BLOOM.

(Discovered by Mr. F. Kingdon Ward).

Miss Willmott's Lily, which also comes in the Martagon section, should be a prolific parent, but has so far yielded no mixed progeny of importance except the hybrid raised by Miss Preston, of which it was the father and L. Davidii, the reputed mother. This may be described in general terms as a robust-growing and floriferous L. Davidii, with, however, the characteristic, drooping flower pedicel of L. Willmottiae. It is no more robust, however, nor more flowery than L. Davidii is, when happily cultivated, as it is in Mr. Robert Dimsdale's garden at Lechlade, whence I have records of plants eight feet high, and not only in one season. L. Willmottiae, too, is capable of almost equal expansion.

Whether this hybrid fills a gap remains to be seen, for while it bears a general resemblance to its parents, neither of them is difficult to propagate or manage. On the other hand, the hybrid is at a disadvantage in that if it is to remain true, it must be propagated vegetatively. What will probably happen with this Lily, as with that called L. sulphurgale, is that in course of time the seeds will be distributed and the offspring will be confused with the parental types by those who do not know its history. Of all the Martagon section, the typical Martagon Lily seems the most prolific as a parent, and there is something almost improper in the promiscuous way it will mate with others of its section. Then, too, it lends itself peculiarly to the hybridiser's purpose, as it is in bloom in July when the main group of the section is in flower, so that there is ample material on which to work.

The albino form of L. Martagon has long been the sport of the hybridiser and many have been the bastards it has sired or mothered. The Lily called Golden Gleam is one of the L. Martagon var. album hybrids, but in this country it does not seem to have much more staying power than its father, L. tenuifolium, usually shows in English gardens. There is a rich, red-flowered, very downy, seminal form of it which would be worth having were its stamina better. The Martagon Lily, again, is singularly well adapted to the hybridisers' purpose because of the comparatively large

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* C. Purdy, in *Garden and Forest*, August 14, 1895, p. 328.

number of scales of which the bulb is composed, for each is the prospective mother of one or more little bulbs.

The first (or any) bulb of a hybrid which it may be desired to perpetuate can be stripped of all its scales in the comforting assurance that if they are "sown," each will bear a tiny bulblet; the crop can be increased if the edges of the scales are notched, saw-fashion, with a knife, as a bulblet will usually form in each notch—so anxious is Nature to heal the wound. It is true that the total dismembering of a bulb in this way implies its destruction, but those whose courage is equal to the task have the satisfaction of knowing that what they destroy will be renewed a hundredfold. Those who have not the courage of their convictions can propagate a hybrid or almost any Lily by jerking the stem out of the bulb so soon as the flowers have withered and heeling the lower part of the stem in the ground. Little bulbs will form on the buried stems, and in this case, again, the stem may be slightly notched with a knife to assist the formation of bulblets at the injured points.

It is natural enough that L. regale should have caught the eye of the would-be raiser of new Lilies, but so far it has sired little worthy of notice beyond the hybrid called L. Lahnsteineri, of Scheubel, from which the awkwardly-named variety, L. sulphurgale is derived. The latter Lily has been so regularly raised from seeds, however, that the name has largely lost its significance. Hybrids between L. regale and L. Sargentiae have been named L. princeps and L. George Creelman, but they do not seem to be in cultivation here, and the scores of hybrids of L. regale, which Mr. Amos Perry, of Enfield, showed the writer some years ago, have not yet found a place in the bulb lists.

A union of L. regale and L. japonicum, which Mrs. A. Dudley Ryder made at the writer's suggestion a year or two ago, may possibly instil more stamina into the Japanese species without spoiling its lovely colour. L. centifolium has not, as yet, any mixed offspring to its account as the variety Mr. Bowles has flowered between it and L. sulphureum does not appear to have prospered.

Of the perennial character of L. umbellatum there is, happily, no doubt. Of its kind it seems as good a general purpose plant as anyone could wish. It propagates itself vegetatively in no uncertain fashion, and is as much at home on soils containing lime as on those in which there is none. Then, too, the spring which puts this plant out of countenance must be an exceptionally cold and dismal one. Other hybrids with L. davuricum blood in them are substituted for L. umbellatum from time to time, just as the hybrid itself is commonly sold as L. croceum; but there is no confusing it with any other of the upright-cupped section. *A. Grove.*

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXVIII.—Five Alpine Plants.

The rain-drenched mountains of the Indo-Himalayas are not distinguished for their wealth of alpine flowers, other than dwarf Rhododendrons. Even when they are so high as Namcha Barwa, which is over 25,000 feet high, the forests encroach so close to the snow line, and the snow line creeps so far down the mountains, that little room is left for alpine herbs. Therefore we did not expect to find a great variety of alpine herbaceous plants on Kaso, or its neighbours, which barely attain 17,000 feet altitude; Rhododendrons we might reasonably hope for, but not that carpet of alpine flowers which is such a feature of the drier ranges to the north and east. A further handicap was the sameness of the rock everywhere, dark granite and closely banded gneiss. In the Seinghku valley in 1926 I had the good fortune to find a belt of limestone running right through the high country, and this had a flora all its own, greatly augmenting my discoveries; but there was nothing of that sort in the Delei valley.

However, a few alpine and sub-alpine plants of special interest may be singled out for mention in this chapter, and first of all I will deal with the yellow Omphalogramma, as I dubbed it originally, which was the commonest of all. This strange plant grew scattered along the ridge beneath Bamboos and Rhododendrons, between 10,000 and 12,000 feet, that is to say, in the Abies forest. It asks for only moderate shade, often growing on the moss-covered trunks of fallen trees, but it shrinks from water other than that which descends from above; in fact, it is a typical woodland plant like Anemone nemorosa, say. The flowers appear while the leaves are still very immature, opening towards the end of May in the lower altitudes, and are bright yellow, nodding, borne singly at the end of the tall scape, although the crown of leaves may bear two or three separate scapes. At first glance the flower recalls a Lloydia, although this superficial resemblance is quickly lost on dissection, when the plant is immediately recognised as belonging to the Primula family. It is not, however, quite a Primula. The seven sepals, petals and stamens suggest rather Omphalogramma, an opinion strengthened by the bluntly heart-shaped, petiolate leaves and solitary flowers without bracts, and almost confirmed by the urn-shaped capsule.

But it is this same capsule, no less than six inches long and very slender, which puts us on our guard, and partially prepares us for the great surprise. For the seeds are little brown rolypolies with finely-pitted skin, which rattle gaily at the bottom of the tube! No, you cannot call such a plant Omphalogramma—that would be too absurd; these seeds are nothing like the flat-winged seeds of O. Souliei for example, and,

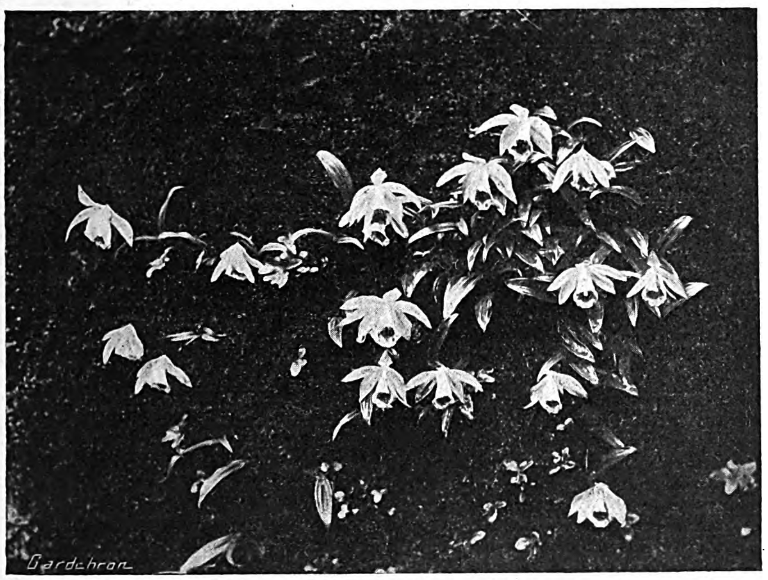

FIG. 77.—A PURPLE PLEIONE.
Found on cliffs at 10,000 feet altitude.

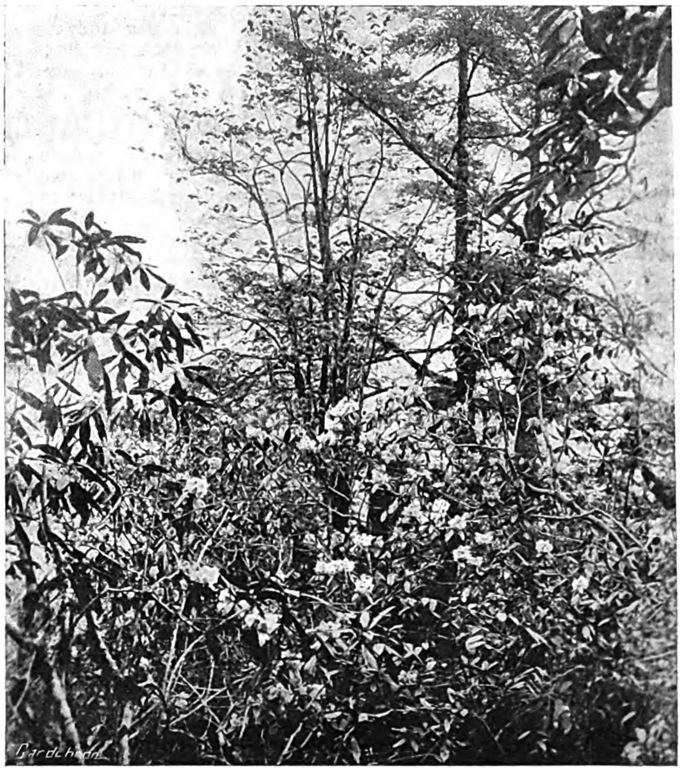

FIG. 78.—RHODODENDRONS IN BLOOM ON THE KASO RIDGE.

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 1929.

truth to tell, neither is the long, terete capsule, with its few seeds trapped in the bulged base (where they may be found nine months later), like the wide-mouthed urn, crammed with seeds of O. Souliei ; although there is a family likeness here, and when the capsule of our plant is ripe, the tip slides off as though cut with a razor, leaving the rim to grow teeth like an Omphalogramma.

Nor do these seeds resemble those of any Primula known to me, coming nearest, perhaps, to the typically-rounded lozenges of the 'Sikkimensis' Primulas, whose long, projecting capsule—shared by some of the 'Nivalis' Primulas such as P. muliense, also recalls that of our plant. It occurred to me—and Professor Wright Smith had already suggested the same thing—that this yellow 'Omphalogramma' might be a Bryocarpum, B. himalaicum being a monotypic genus from Sikkim, a plant I did not know. On arrival in Calcutta I looked up the fine series of this unique species in the herbarium and found that this puzzling plant from the Delei valley, which at one time I had thought to put in a new genus, was in fact a Bryocarpum, although perhaps not B. himalaicum.

The steep flanks of the ridge were seamed with gullies, and those which began their career at 11,000 feet or so, were crammed down below, where visible water first appeared, with alpine meadow flowers such as Trollius, Caltha, Astilbe, species of Polygonum, Aconitum and many other plants.

It was in one of these gullies that I first noticed a 'Sikkimensis' Primula with small, rounded leaves on distinct petioles, as it might be P. firmipes or P. reticulata. Eagerly I watched the buds, at this date still snuggled down among the flanged bases of the leaf stalks, and when about mid-June they began to stretch themselves, showing a chocolate lining to their green jackets, I expected a rich prize. A few days later the first flowers shook themselves free. They were of the ordinary 'Sikkimensis' type, rather slender, of a rich maroon-red, and deliciously scented. There was, indeed, an air of daintiness about the whole plant which was quite fascinating—the tidy leaves, the trim scape negligently swinging its tassel of slender, red flowers, everything neat and graceful. Moreover, this species is as unlike any of the other red-flowered 'Sikkimensis' Primulas as one "Sikkimensis" can be unlike another. It bears no resemblance whatever to 'Ruby' (P. Waltonii), and even less to P. microdonta var. alpicola (rubra), differing in foliage, in flower, in stature, and in its complete lack of meal. Nor is it any more like P. secundiflora, or P. vittata. Its nearest and dearest seem to be P. Florindae, P. firmipes, and P. reticulata ; and if extremes mate, and it can be persuaded to infuse some of its breeding and sanguine complexion into P. Florindae, the resulting mulattos should be worth while.

On the gravelly flanks of the ridge at Iris Cliff there flowered at the beginning of July a second species of Nomocharis. It was not perhaps a beauty, being woefully spotted as though a fierce rash had erupted all over its damask petals, ruining its complexion, but it was undeniably a handsome plant. Unlike those of the red Nomocharis, its flowers opened wide and flat, being about two inches in diameter, the petals, three and three, sharply pointed. It was a tallish plant, fully two feet high when the first bloom opened, and it would probably put on another foot to help carry its full load of half-a-dozen flowers. The satin ground-work of the petals was a faintly clouded white emblazoned with spots and splashes of sinister purple ; and the little column of foxy-orange anthers contrasted keenly with the morosely dark centre. The only species of Nomocharis this recalled to me was one I collected many years ago on the Pine-clad hills of Yung-ning, in far away Yunnan, and referred, I believed, to N. Mairei, It would be odd to find N. Mairei in the Mishmi Hills ; more likely it is a new species.*

Then there was that wonderful little rock Rhododendron which I have named 'Rock Rose,' one of the brightest and sprightliest of creepers. It forms a close mat of long, thread-like stems, branching repeatedly, the flowering shoots ascending an inch or two. The leaves are few, crowded at the ends of the twigs, leaving the stem bare ; but all this is covered by the large, pale purple-spotted corollas, borne singly in great profusion, each about an inch-and-a-half across. This species belongs to an assemblage which is difficult to place. The first species met with was 'Purple Emperor,' collected in the Seinghku valley in 1926 ; but that has much smaller flowers, although the two are obviously related. The funnel-shaped corolla and very laxly lepidote leaves forbid alliance with the 'Saluenenses,' to which the habit of these creeping rock mats points ; and for the present they are best left in a group by themselves.

Lastly, the gamboge 'Nivalis' Primula of Boggy Valley, a blond rival of the 'Tea Rose' Primula—the rose-coloured Seinghku valley form of P. Agleniana. The gamboge Primula showed mixed affinities. In general appearance, in the shape of its large flowers, and to some degree in colour and in the restrained development of the truss, it recalled the 'Daffodil Primula' of the Doshong La (Tibet, 1924). But it was a richer and more constant yellow than that 'beautiful devil,' without its fragrance. And the Daffodil Primula never developed more than two flowers on a scape, usually only one ; the gamboge Primula usually developed two or three flowers in a truss, and we collected one plant, out of the thousands seen, with five. In this respect, therefore, it stands mid-way between the shy 'Daffodil' with its one or two flowers, and the exuberant 'Tea Rose' with its fat bunch of eight or ten. But the long, strap-shaped leaf of the gamboge Primula, with its deeply saw-edged margin, was the leaf of the 'Tea Rose' Primula, or of true P. Agleniana, over again.

This glorious 'Nivalis' spread a cloth of gold over the one-time snowfields of the northern slopes of Kaso, where a fortnight earlier P. calthifolia had first seen the light of day. The ground was a tenacious bog, coal-black when wet, and into this unpromising looking vegetable clay, the Primula thrusts its long, radiating roots from the base of the etiolated bulbous rootstock. The plants probably live quite four or five years before they can produce a really good head of flowers ; but as they are buried under an immense weight of snow for at least seven months in the year, they do not really have to work so desperately hard. While in flower, their life is one long aquatic sport. But although we jeer at their conception of happiness, it suits them to such a degree that, on the bleak, boggy, northern slopes of Kaso, there flower every June and July tens of thousands of the gamboge Primula. *F. Kingdon Ward.*

HARDY FLOWER BORDER.

COREOPSIS VERTICILLATA.

One of the most graceful of the Composites for autumn flowering is the North American Coreopsis verticillata, a plant which has been introduced for very many years. The figure in the *Botanical Magazine,* which purports to be C. verticillata is, however, a representation of C. delphinifolia (*Bot. Mag.*, t. 146). C. delphinifolia is a taller and less graceful plant than C. verticillata. It is strange that this latter species is so little known, as the writer has found from the many inquiries which he has had regarding its name, especially from people who have seen it in his garden. It grows well in ordinary loam, and forms a very neatly-shaped bush about two feet or a little more in height, composed of a number of stems bearing many leaves arranged in verticillate order around the stems. The plant bears a great number of moderate-sized, clear yellow flowers well distributed over the handsome bush. The general effect is somewhat approaching that produced by a Nigella of taller habit than usual and with yellow flowers.

Coreopsis verticillata is stocked by many hardy plant dealers at a moderate price and may be planted either in autumn or spring. It may be raised from seeds, but, as the plant is of free, although not aggressive, growth, it is easily increased by means of division in spring or autumn. I have always grown it in borders having a fair amount of sun. It begins to flower in the end of July and lasts for a considerable period in bloom. *S. Arnott.*

SYMPHYANDRA HOFFMANNII.

With the exception, perhaps, of the beautiful S. pendula, the Symphyandras have never enjoyed a recommendation sufficiently warm to ensure their popularity as garden plants. But, in addition to the species mentioned, S. Hoffmannii is a really good thing, so good for the post-Campanula days of August that one is surprised it is so little known. From a bold tuft of roughish leaves, which looks exactly like a promising Canterbury Bell, flower stalks appear about mid-summer. These grow to some eighteen inches long and bear throughout the later weeks of the season a succession of flowers in a firm, clear white. The individual blossoms, if they have some resemblance to those of the familiar biennial mentioned, are refined enough to assert their superior distinction, and a strong plant, producing several of these flower-bearing stems, is decidedly handsome.

S. Hoffmannii likes a well-drained, gritty loam and, unlike many others of its kind, prefers rather a cool, partly-shaded spot. This species came from Bosnia in 1884. It is quite hardy and perennial, shadowed as it may be by the menace of biennialism.

SALVIA DICHROA.

This is an old plant, being known to our gardens since 1793. It is a robust herbaceous perennial and if it can scarcely rival the best of its class there is a distinction and charm about its four-feet spires of lavender-blue and white flowers which should have earned it a wider recognition. The rough and crinkly, Mullein-like leaves are a deep green with a purple tint on the mid-rib, and the branching flower stalks, stained with the same hue, are elegantly tapered and held stiffly upright.

Salvia dichroa blooms a good deal earlier than many of the border Sages, a succession of flowers being maintained from the beginning of June for several weeks. The individual blooms are fully an inch long and the seeds, which are yielded abundantly, afford a ready means of increase. A clump of Salvia dichroa looked remarkably well in a mixed border this summer with yellow Verbascums as companions. *J.*

PENTSTEMON GLABER AND P. ANGUSTIFOLIUS.

There are, apart from the brilliantly and variously-coloured Pentstemon hybrids, many beautiful species which are grand garden subjects, and among them Pentstemon glaber ranks high, being suitable for planting in groups either on the rock garden or in the front of the herbaceous border, as it is of comparatively dwarf stature, seldom attaining more than one foot in height, although the individual flower stems may be anything up to two feet in length.

Pentstemon glaber comes from the western United States, but in my garden it has proved quite hardy and is a good perennial, provided it is not subjected to wet and dank soil conditions in the winter. Perhaps it is best grown on the rock garden, certainly it is an ideal subject for such, for it provides a wealth of bright colouring at a season of the year when the majority of the alpine plants have ceased to display their floral charms, and rock garden conditions would appear to suit it best. It should be planted in a sun-kissed spot, in rather light and well-drained but moderately rich soil, and under such conditions will form a clump of short-stalked, entire smooth and slightly waved, glabrous and more or less glaucous foliage, and will produce during

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* Mr. W. E. Evans informs me that this is N. aperta, a species hitherto known only from a small area in western China. N. aperta, however, is not closely allied to N. Mairei.

July and August numerous slender, leafy, erect or semi-prostrate stems terminating in dense inflorescences, the wide-mouthed, tubular flowers one inch or more long, and bright amethystine-blue in colour, shading to violet or rosy-purple, being produced in opposite clusters of six or more in the axils of leaf-like bracts. P. glaber is figured and described in the *Bot. Mag.*, t. 4,319, under the name P. Gordoni, the figure being of a plant raised from seeds collected by a Mr. Gordon in the Platte River valley, on the east side of the Rocky Mountains. There are several distinct forms of P. glaber in cultivation, although it is doubtful if any of them is an improvement on the type, which is a plant of rare charm; certainly those in which the purple colouring is developed at the expense of the bright, clear blue are inferior to it. However, some of the varieties are worthy of recognition, notably var. cyananthus. This variety, which was previously classed as a distinct species, is taller and rather more vigorous than the type, and is less glaucous, the leaves are broader, while the blue flowers are borne in dense clusters. P. g. var. cyananthus (sometimes given as cyanthus) is found in the Rocky Mountains and in Colorado and Utah; it is figured in the *Bot. Mag.*, t. 4,464, as P. cyananthus, and may be regarded as equal in decorative value to the type.

The variety alpinus is described as having narrow or broadly-lanceolate leaves, and may also be distinguished from the type in that the inflorescences are shorter and fewer-flowered. It is limited, apparently, to the Rocky Mountains and is regarded by some authorities as a distinct species. P. g. var. rosea is of about the same height and habit as the type, and has rose-coloured flowers, while the variety splendens grows to a height of about two feet, and has dark blue, richly-coloured blooms. The other variety of P. glaber worthy of note is var. speciosa, which, like several of the other forms, was primarily regarded as a distinct species; it has bright blue flowers, shaded with purple. Some, or all of these varieties are worth planting if space can be found for them.

Another beautiful Pentstemon, which ranks with the foregoing species as one of the gems of the genus, and which also has come to us from across the Atlantic, is P. angustifolius, perhaps more commonly known under its synonym P. coeruleus. It is a lovely plant indeed, of varying height—from one to two feet,—with glossy, grey-green, narrow foliage and producing masses of leafy stems, during the same period as P. glaber, which are crowned in their upper parts with closely-packed, one-sided spikes of lovely flowers, clear, rich sky-blue, shaded with rosy-lavender to a greater or lesser degree, but withal very handsome and striking; they vary in colour somewhat, some plants having lilac or almost white blooms.

Like P. glaber, this species is most at home in English gardens when planted in a sunny position on the rock garden, in rather stony and well-drained, light, but amply enriched soil. Both the species may be increased by seeds, or by the careful removal of offshoots, which are best potted and wintered in a cold frame. *M. W.*

ALPINE GARDEN.

SAXIFRAGA CAESIA.

There are many more appreciated little Kabschia Saxifrages, yet there are few which would induce us to deny the pleasure of cultivating S. caesia in order to give space to another of the race. Fraser tells us that "it is the commonest of the choice wild Kabschias, and always one of the most delightful." It was in bloom in my moraine in early June, but it deserves notice on account of its foliage even if it never bloomed at all. It creates small, crowded mounds of tiny rosettes, closely packed together, and made up of little, recurving leaves, rather broad-shaped and charmingly dotted with lime. From these emerge slender, thread-like stems three inches or so high each bearing several attractive, milk-white, starry flowers. It is charming here in the moraine, but grows perfectly well on rockwork. The species has a decided preference for lime and a rather cool place, but the former it can do without and the latter is not so much needed in the colder districts of this country. The form major, which I do not possess, is very fine indeed.

POLYGONATUM OFFICINALE.

There is a dwarf Solomon's Seal, which is a native plant, but is none the less beautiful because of that. Although a native, it is quite rare in gardens, but those who have had it once and lost it look back with regret upon the days when this attractive little plant gave some beauty to their gardens. It is one of the plants which are to be found in copses below the limestone cliffs, and in the cracks of the same rock higher up. Yet it is rare in gardens and seems as rare in nurseries, at least if one may judge from its absence from most catalogues. I had it years ago from a true lover of flowers, and grew it for a good while but lost it through removal.

It resembles, yet is unlike, the ordinary Solomon's Seal of gardens, and it is only about eight inches high. P. officinale has pale green leaflets folded back, and from each pair there hang out two large, whitish-green bells. It flowers quite freely and is a good plant for near the front of the border or for the rock garden. I have never seen it seed, but it may be increased by division. One would consider from its native habitats that it was a lover of lime, but it thrives quite well without it, as the writer has found.

CAMPANULA LAURII.

Campanula Laurii, stated to come from the Greek Islands, has not been long finding its way into gardens where the best rock plants are appreciated. The family, although to some degree subject to the fluctuations of demand, as new plants come into cultivation, can never be neglected, as it is one of the highest importance among alpine flowers. The species, hybrids and varieties of Campanula comprise so many lovely plants that it is difficult for a new one to make its way unless it has some outstanding beauties.

C. Laurii appears destined to remain a favourite and to be included in most good rock gardens. In habit it is after the fashion of C. rotundifolia, but its flowers, instead of drooping, are erect and open. They are of a pleasing shade of lavender. They are also of good size, being in many cases about an inch across. This Campanula flowers exceedingly profusely, and a good plant is a sheet of bloom at its zenith in late summer. C. Laurii, which is hardy, may be raised from seeds or propagated by division or cuttings. The soil generally afforded to rock plants will answer well for C. Laurii. *S. Arnott.*

LINUM VISCOSUM.

This is a plant of much distinction and charm, but it is not one that is often grown, and it is seldom seen doing very well. It came to us over a century ago from Southern Europe and is, as Farrer reminds us, one of the few Flaxes which rather shrink from the hottest and driest places. The same author writes that it is rather a spare grower, with no more than one or two stems to a crown, and this is no doubt a common characteristic.

I have seen the plant make quite a sheaf of growth in addition to bearing an abundance of flowers, that being on a stony hillside, with enough underground moisture and other essentials to constitute a natural moraine. These flowering stems rise to about a foot. They are set with broad, oval leaves and break into short branches at the summit, each producing several flowers. These latter, in my own plants, are a clear rose with lilac shadings and a satiny sheen, but there is a good deal of variability in the colour, some tending to blue, others to mauve. L. viscosum seems hardy enough and is valuable on account of its flowering in July and August. The whole plant is sticky, or viscous, as the specific name suggests. *North Wales.*

THE GENUS PRIMULA.

(*Continued from p.* 128).

PRIONOTES (Balf. f.). Karo P.
(Sikkimensis).

A handsome perennial sub-species of P. Waltoni (Watt) resembling a purple-flowered P. sikkimensis with a sparse tuft of thin, non-mealy leaves about seven inches long, with elongate-oblong or narrowly-elliptic, blunt or pointed blades abruptly wedge-shaped at the base, or gradually tapering to an obscurely-winged stalk, at times slightly dilated below; margins furnished with regular, saw-like teeth; under surface paler than the upper. Flower stem nine to fourteen inches tall, coated with yellow meal at the tip, slender, bearing a terminal, many-flowered umbel of purple, drooping, somewhat reflexed blossoms on thread-like, more or less mealy stalks. Corolla concave, about five-eighths-of-an-inch across, sprinkled with yellow meal and divided into five rounded or oblong, erect, slightly notched lobes; tube cylindrical below, funnel-shaped above, about twice as long as the calyx. Flowers in July.

Grows near Karo-La, in Tibet, in damp situations at about 16,500 feet above sea-level.

Culture: As for P. sikkimensis.

PROLIFERA (Wall). Indian Imperial P.
(Candelabra).

A deciduous perennial closely allied to, if not a form of, P. imperialis. It produces a robust tuft of egg-shaped, lance-shaped or elongate-egg-shaped, spathulate, blunt leaves from eight to sixteen inches long, tapering to a broad, winged stalk; margins entire or sharply toothed; upper surface more or less smooth, underside smooth or downy, non-mealy. Flower stem stout, twelve to eighteen inches tall, bearing from two to four superposed umbels of numerous yellow flowers. Corolla about three-quarters-of-an-inch across, divided into five broadly heart-shaped, notched lobes; tube cylindrical, twice as long as the calyx, with a ring in the mouth. Introduced in 1884. Wall in *As. Research*, Vol. XIII, 372, t. 3.

Grows in damp places on the Khasia Hills, in north-eastern India, at from 4,000 to 6,000 feet above sea-level.

Culture: As for P. imperialis.

PSEUDOBRACTEATA (Petitm.). False Bracteate P.
(Bullatae).

A sub-shrubby, evergreen species with a thick, woody, branching rootstock clothed with the dried remains of previous seasons' foliage. It forms tufts of oblong, blunt leaves about one-and-a-quarter inch long tapering to narrowly winged stalks about equalling the blade in length; margins edged with sharp teeth; underside coated with white meal. Flower stem half- to three-quarters-of-an-inch tall, bearing an umbel of four to six yellow blossoms on short stalks. Corolla concave, about half-an-inch across, with broadly heart-shaped, notched lobes; tube twice as long as the calyx.

Grows in the clefts of rocks and on the ledges of cliffs near Batang, in Yunnan, western China.

Culture: As for P. Forrestii.

PSEUDODENTICULATA (Pax). Chinese Toothed P.
(Denticulata).

This species, which is best treated as a biennial, produces a rosette of numerous, non-mealy, lance-shaped or linear-oblong, stiff leaves, blunt or pointed at the tip, tapering to a winged stalk, in all from three to four inches long; margins recurved, coarsely toothed or almost entire. Flower stem six to twelve inches tall, stout, covered with white meal upwards and bearing a flattened, many-flowered head of rosy-lilac, fragrant blossoms with an orange-coloured eye. Corolla about five-eighths-of-an-inch across, concave, with broadly heart-shaped or broadly wedge-shaped, notched lobes; tube slender, cylindrical, about as long as the calyx, with a ring in the throat. Introduced in 1908. *Gard. Chron.*, 1913, Vol. LIII, p. 264, Fig. 113.

Grows in damp places in mountain valleys in the regions of Mentze and Tali, in Yunnan, western China, at 7,000 to 8,000 feet above sea-level.

Culture : As for P. denticulata.

PSEUDOELATIOR (Kurnetzow). False Oxlip. (Vernales).

A handsome sub-species of the true Oxlip, with tufts of hairy, much wrinkled, rich green leaves two to four inches long, with oval blades, heart-shaped or abruptly truncate at the base, with broadly winged stalks ; margins furnished with regular, rounded teeth ; underside paler than the upper. Flower stem three to six inches tall, erect, downy, bearing a many-flowered umbel of yellow blossoms. Corolla about three-quarters-of-an-inch across, with heart-shaped, shallowly-notched lobes.

Grows in damp, alpine meadows and on the margins of woods, in the central and western Caucasus, at 6,000 to 10,000 feet above sea-level.

Culture : It requires good, rich, fibrous loam in a damp spot.

PSEUDOGLABRA (Hand.-Mazz.). False Smooth P. (Farinosae).

A slender, deciduous, perennial species apparently of but little decorative value, with a short, stout rootstock emitting many fibrous roots and a sparse tuft of deep green, erect leaves, with egg-shaped or egg-shaped-oblong blades, half- to one-and-a-quarter-inch long, usually rounded at the tip and gradually tapering at the base into slender, narrowly winged stalks, usually exceeding the blade in length ; margins edged with blunt, curved teeth ; both surfaces covered with minute, sub-sessile, meal-producing glands. Flower stem four to six inches tall, slender, non-mealy, bearing a many-flowered head of rose or violet-coloured blossoms, on extremely short, thick stalks. Corolla flat, usually less than a quarter-of-an-inch across, divided into five broadly obovate, bifid lobes ; tube broadly cylindrical, about equalling the calyx in length, with an obscure yellow ring in the mouth. Not in cultivation.

Grows in damp, rocky hollows above the temple of Huang-lung-si, at Dongrergo, in northern Szechuan, at about 15,000 feet above sea-level, on the borders of the melting snow.

Culture : As for P. farinosa. *A. W. Darnell.*

(*To be continued*).

THE CULTIVATION OF NEW ZEALAND PLANTS IN BRITAIN.*

(*Concluded from p.* 129).

Raoulia is represented only by the sub-alpine and lowland species, such as R. australis, R. subsericea, R. glabra. The high alpines are absent, and might be very difficult to grow. R. eximia is often tried in vain.

Helichrysum is fairly well represented. H. bellidioides is commonly grown and H. Selago and H. microphyllum are sometimes to be seen. I have not found H. coralloides or H. Youngii here, and H. grandiceps (" Edelweiss ") has not, I think, been successfully grown yet. H. dimorphum, that wonderful discovery of Dr. Cockayne's, does well at Edinburgh.

Celmisia has naturally attracted much attention, and most of the larger species are in cultivation in specialists' gardens, such as C. coriacea, C. holosericea, C. Hookeri (or verbascifolia), C. spectabilis, C. densiflora, C. prorepens, C. Monroi, C. McKaui and C. petiolata. But few or none of these are in general cultivation or stocked by nurserymen, and I miss altogether the smaller, yet very ornamental, species, which would be invaluable for the rockery, such as C. Hectori and C. argentea. C. viscosa is at Edinburgh.

Haastia is completely wanting here, although I have myself sent seeds of H. recurva to this side. They would, of course, be very difficult to grow, even in " moraine," and hitherto no one seems to have succeeded with any of our three species.

Epilobium has also been comparatively neglected, but a few of our more handsome species are grown (although not generally). I have seen E. chloraefolium E. macropus, E. pedunculare and E. nummularifolium most frequently, and in the Edinburgh rockeries E. melanocaulon and E. pictum, both unlabelled and perhaps accidentally introduced with other plants ; also E. nerterioides.

Gentiana is one of the great surprises. The only New Zealand Gentian that I have seen here was the humblest of them all, G. novae-zelandiae, sent to Mr. Loder by Mr. Edgar Stead. The absence of rich colour, of course, renders our species less attractive than those which are so deservedly popular here, yet such plants as G. corymbifera and G. saxosa (to mention only two) are surely worthy of a place in any garden if they can be brought to anything like their true form in this climate. G. saxosa, as a maritime species, would probably prove tender.

Myosotis is another disappointment. I saw M. Traversii at Edinburgh although modified and hard to recognise and M. decora, sent by Mrs. Poulton to Mr. Millard and also grown by Mr. Ingwersen. One feels sure that such species as M. macrantha and M. concinna would meet with a warm welcome and there are others which suggest themselves also. Kew has M. Traversii, M. capitata and M. antarctica only.

Aciphylla is not a very attractive genus, but A. Colensoi is much admired and often grown, and A. squarrosa also is found here and there. I have seen no others.

Carmichaelia, though not exactly ornamental, is grown a good deal, C. Petriei, C. grandiflora, C. flagelliformis, C. Williamsii (where possible), and C. Enysii have been seen in several places. The allied Corallospartium and Holospartium (two species) have also been seen here and there. Chordospartium Stevensoni was grown by Mr. Boscawen at Ludgvan, but it had not flowered when he published his paper on our plants in 1923.

Coprosma is very well represented. In one place or another I have listed C. acerosa, C. parviflora, C. rotundifolia, C. propinqua, C. rugosa, C. Petriei, C. ramulosa, C. serrulata (Wakehurst), C. robusta and C. Baueri (Tresco).

Hoheria, Plagianthus and Gaya are quite extensively cultivated—all our species, I think. Gaya Lyallii and G. ribifolia are especially popular. Kew can only grow Plagianthus and Hoheria under cover.

Pittosporum has been much cultivated and most of our species are to be seen in several places. P. Dallii does very well, at Ludgvan in particular ; P. crassifolium is found most useful as a shelter-belt plant at Tresco ; several forms of P. tenuifolium are in cultivation, especially in Guernsey. Uncommon species like P. patulum, P. Ralphii and P. Fairchildii have been listed here and there.

Nothofagus is not so generally grown as one would expect. All our species have been seen, however, and at Tresco, Wakehurst and Ludgvan they grow splendidly. Aldenham has been found too cold for them ; so has Kew.

All our Cordylines are grown in the west. At Tresco, in addition to the remarkable hybrid already mentioned, there is a beautiful copper-coloured form of C. australis which comes true from seeds. C. australis and C. indivisa are stocked by nurserymen in the west and in the Islands.

Dracophyllum is not very attractive. D. Urvillei has been occasionally seen, also D. longifolium. That very strange and striking tree, D. Traversii, was brought over by Major Dorrien Smith in 1908 ; it failed at Tresco—apparently the climate was too dry for it—but was successfully grown in a garden near Penzance to a height of at least twelve feet.

Ourisia, which is a small but very distinguished genus, is represented by O. macrocarpa and O. macrophylla, both of which have done well at Edinburgh and elsewhere. There are others which would seem to deserve attention here. O. caespitosa is at Kew.

New Zealand Orchids are naturally neglected. I have seen one species of Pterostylis (Banksii) only in this country. All, or nearly all, our Acaenas are commonly cultivated and well-known.

Carex is not a genus which gardeners care much about. The only New Zealand species which I saw at all often is C. Buchanani. I have also seen C. ternaria and C. secta (at Icomb Place only), C. comans, but no others of our fifty odd species. The only other Cyperaceous plant I saw was Uncinia compacta (Edinburgh).

Grasses, with a few exceptions, hardly come into the province of the gardener, and only a few of ours are to be seen here. I saw very fine and handsome specimens of Danthonia Cunninghamii at Tresco ; that very curious little grass, Ehrharta Thomsoni, in a greenhouse at Edinburgh ; a Fescue or two at Edinburgh ; Poa Mariototo, Arundo conspicua (Toi-toi), Poa Astoni, Agropyrum scabrum, and Dichelachne crinita (both sent to Edinburgh by Mr. Guthrie Smith).

Only a few of our Ferns are grown. Mr. Millard has a fine specimen of Blechnum pennamarina (but from Tasmania, I think). At Tresco there are all our Tree Ferns, and elsewhere in Cornwall Dicksonia antarctica and D. squarrosa do well. Schizaea fistulosa is grown (indoors) at Edinburgh ; Adiantum ethiopicum is at Ludgvan.

All our Conifers, or nearly all, are grown in the west, as at Tresco ; but at Kew they are all grown only in the Temperate House. Finally, I have seen no representatives at all of any of the following genera, in each of which some species might prove to have garden value ; Cladium, Luzula, the Orchids generally, Loranthus, Stellaria, Cardamine, Nasturtium, Notothlaspi, Drosera, Angelica, Caltha, Euphrasia, Forstera, Schizeilima, Pentachondra, Hectorella and Donatia.

Shingle Plants.

Not one of our true shingle plants is grown in Britain, and for that matter, I do not know that any of them have been grown with any real success in New Zealand. It is difficult to give these plants the peculiar conditions which they require—perhaps it is impossible—but there are several growers who are very anxious to try them. The Penwiper has been attempted and seeds have been germinated and seedlings grown for a short time by Mr. Millard, but they die off before reaching maturity, and this was my own experience with them in New Zealand. Perhaps, now that some of the gardeners know more of the actual conditions under which these plants grow, some success may be achieved, and they will certainly be given a chance. It would be a real triumph to grow and flower in England such a plant as Ranunculus Haastii, or R. chordorhizos, or Wahlenbergia cartilaginea. All these, I hope, will soon be tried here.

Work Yet to be Done.

It should be evident, even from this imperfect and rather lame account, that in spite of the assiduity and enthusiasm with which our plants have been hitherto cultivated in Britain, much yet remains to be done. Some of them no doubt, require such very special conditions (such as have been mentioned) that they may never be successfully naturalised here, but there are plenty of others which could certainly be grown and would as certainly be greatly welcomed and admired. One thinks, for instance, of Geum divergens, Gentiana corymbifera, Senecio Lyallii and S. scorzoneroides, Myosotis macrantha, M. explanata, M. concinna, Celmisia Hectori, Ranunculus Godleyanus, R. paucifolius, R. sericophyllus, R. pachyrhizos and R. Berggreni ; Helichrysum coralloides, H. grandiceps, H. pauciflorum, Epilobium brevipes, E. gracilipes, E. vernicosum—all these, and anyone will think of others—might well be grown in Britain, if not always as ornamental plants, then for their scientific value and interest.

I look forward to the chance of transmitting some of these at least to Britain in the near future, and doubtless there are many gardeners and field botanists in New Zealand who will gladly co-operate with me in this work—at any rate, I shall hope so—and if only a few of such efforts lead to success the labour of writing this account and collecting the materials for it will not, I think, have been entirely wasted.

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*By Professor Arnold Wall, Canterbury College, Christchurch, N.Z. Reprinted from *The Press*.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

(*Continued from p.* 135.)

ENGLAND, N.E.

Yorkshire.—The winter which we passed through in this part of England was the most severe for many years. The whole of the month of February was practically a period of truly arctic conditions. Any unduly exposed top growths of small fruits, and even of the hardiest Apples, were killed. Loganberries suffered most, and are, consequently, a short crop. The Veitchberry, however, withstood the excessive cold splendidly and there was no dead wood on last year's canes at all. These canes have now produced lateral fruiting shoots eighteen inches long and a bumper crop is assured. Black Currants have the largest berries I have yet seen; there is no big bud or green fly. Fruits of every kind were a fortnight late in blossoming. The flowers were very profuse and of fine quality, but I noticed a shortage of bees at the critical time and so the set of fruits was small in proportion to blossom. *W. H. Bolton, 8, Ash Grove, Beverley Road, Hull.*

—— The fruit crops at Dalton are satisfactory, with the exception of Apples, Pears and Plums. These are disappointing, especially after the fine show of fruit buds in the early months of the year. The trouble commenced with the high temperatures experienced during the latter end of March and early April, which brought the buds on far too rapidly, and the succeeding night frosts took a heavy toll of the recently opened buds. Small fruits are again carrying good average crops, which would have been heavier still but for the drought, which has been severe in East Yorkshire. The rainfall measured in these gardens for the first six months of the year barely totalled seven inches. The soil here is a good medium loam resting on clay with a base of chalk. *James S. Coates, Dalton Hall Gardens, Beverley.*

—— The Apple crop is very light, chiefly on account of the lack of rain to give the fruits a start after setting. Strawberries suffered similarly. Gooseberries and Raspberries are good, but at the time of writing rain is needed to swell the latter. Black Currants are a good crop, but all fruits are suffering through lack of rain. *James E. Hathaway, Baldersby Park Gardens, Thirsk.*

—— The varying nature of the soil in this district has delayed the progress of fruit crops. Small fruits needing surface water have suffered most. Too late for the Strawberry crop, but helping on the Raspberry crop, the recent rain was very welcome. Apples should now commence to swell, but previously they looked like falling off, especially on soil of a shallow nature over rocky subsoil. In the valleys, where the subsoil is of clay, the trees have suffered very little. *J. G. Wilson, New Millerdam, Wakefield.*

ENGLAND, E.

Essex.—Apples and Plums are very scarce this season, but some varieties of Pears are fairly plentiful. Currants and Gooseberries are plentiful and good. Strawberries, but for the prolonged spell of dry weather, would have been abundant and good. The trees, generally, are making good growth and are free from insect pests. The soil here is a stiff clay. *Arthur Bullock, Copped Hall Gardens, Epping.*

—— Taking into consideration the prolonged drought, the fruit crops in these gardens are, on an average, good. Apples, during the flowering period and after setting of the fruits, appeared to be satisfactory, but during May the climatic conditions and severe attacks of insect pests caused many of the young fruits to fall. There have been abundant crops of Strawberries and Raspberries, the soil being suitable for these, but not for other fruits, as it is a light, black medium inclining to be gravelly, with clay and gravelly subsoil. *Thomas William Mead, Hylands Park Gardens, near Chelmsford.*

Huntingdonshire.—With the exception of Strawberry plants, which suffered severely during the winter, fruit plantations of all kinds wintered well, and blossomed profusely, owing, I think, to the well-ripened wood of last autumn. But the severe late frosts and subsequent dry season completely ruined the fruit prospects. The Apricot blossom was killed completely, and not a fruit is to be found on the trees. *Guy S. Aubertin, Conington Castle Gardens, Peterborough.*

Lincolnshire.—The fruit crops in this district, as a whole, are not satisfactory, no doubt owing to the severe late frosts and such a dry period as we have gone through recently; the total rainfall for the six months ending June, was 5·34 inches, as compared with 13·28 inches for the same period in 1928. *A. E. Jackson, Normanby Park Gardens, Scunthorpe.*

—— The poorness of the fruit crop is due to the frost experienced at blossoming time in many cases, and in others, where fruits had set, the harsh, dry weather caused them to dwindle and drop from the trees. *J. F. Vinden, Harlaxton Manor Gardens, Grantham.*

—— The fruit crops this year are, on the whole, very satisfactory. Considering the long spell of dry weather, Strawberries have produced good crops of grand quality. Gooseberries and Red and Black Currants are carrying heavy crops of excellent quality; Raspberries also promise well. At the time of writing Apples promise well, Plums are moderate, but Damsons are carrying heavy crops. The soil here is a good loam, with a marly subsoil. *A. Neal, Casewick Hall Gardens, Stamford.*

Norfolk.—All fruit trees and bushes here are carrying average crops. On July 4 we registered nearly three inches of rain, which was greatly needed, and fruits have greatly benefited by it. Temperatures have been variable. The soil here is very light and sandy. *Isaiah Johnson, Catton House Gardens, Norwich.*

—— The fruit crops generally withstood the drought remarkably well. Soft fruits are short, but the plants and bushes are growing well and are in excellent order. On the lighter lands, and particularly in the Norwich crag, the state of affairs is rather different and plants are somewhat dried up. Cooking Apples, generally, set well, and provided we get rain in sufficient quantity during the next two months there should be a good crop. It has been a good season for spraying and pests are well under control. *T. R. C. Blofield, Hoveton Fruit Farm, Wroxham.*

Suffolk.—It is difficult to estimate the quantity of fruits in this district, owing to the irregularity of the crops. For example, some varieties of Apples are carrying good crops, notably, Worcester Pearmain, Allington Pippin and Lane's Prince Albert, while Blenheim Pippin, Bramley's Seedling and Cox's Orange Pippin are failures. Plums are still more uncertain, trees in some positions having good crops, while others are barren. Among small fruits, Black Currants show the best crop. On the whole it is a disappointing fruit season due to late spring frosts of exceptional severity. *E. G. Creek, County Horticultural Institute, Abbey Ruins House, Bury St. Edmunds.*

—— Owing to the severe frosts of April and May, Apples and Plums suffered severely, and what fruits did swell suffered from the drought, which caused the Apples to drop badly. The rainfall here for the first six months of the year was 5·11 inches. *A. G. Marks, Clevering Park Gardens, Wickham Market, Woodbridge.*

ENGLAND—MIDLAND COUNTIES.

Bedfordshire.—The season, which promised so well, has not come up to expectations; after the hard winter we expected a congenial spring, but frosts occurred very late in the season and now, at the time of writing, drought is playing havoc with the fruit crops. Peaches and Nectarines are up to the average, but Apricots are again disappointing. Plums are an average crop, with Victoria, Kirke's and Monarch slightly over; Pears are about average, Doyenné du Comice being rather short. Apples are patchy, with Cox's Orange Pippin on the short side. Blenheim Pippin, Lane's Prince Albert, and earlier varieties have full crops, but the fruits are dropping badly owing to drought, with the result that no thinning will be needed. Strawberries are a very poor crop, for the winter played havoc with them and the drought set in when they started growing; the crop is the worst for years. Raspberries are a full crop and promise well. Black Currants, also, are very good, as are Red Currants. Gooseberries are a failure owing to the birds destroying the buds in the winter. Cherries are a poor crop, except Morellos, which are good. The season has been remarkable for the absence of aphis. The soil here is a sandy loam. *W. G. Warner, Chicksands Priory Gardens, Shefford.*

Buckinghamshire.—The remarkable recovery of all fruits from the severe winter is very outstanding. Bees were "friends in need" when stone fruits were in flower—a very fine set of Peaches and Apricots resulting. Plums did not flower well. Most Apple trees have set good crops and the fruits have developed well, in spite of a good crop last year. Pears flowered freely and, fortunately, a good percentage of the fruits have dropped, the good crop remaining being of clean and healthy fruits. Black and Red Currants are good, and Gooseberries and Strawberries are excellent, the size and flavour of the latter fruits being first-rate. Mulching did much to insure the success of the Strawberry crop. The soil in these gardens is sandy gravel, overlying chalk. *Geo. H. Emmett, Taplow Court Gardens, Taplow.*

—— The fruit crops, in general, are very good, which, I think, is owing to the season being so late that the blooms escaped the late frosts; small fruits are carrying heavy crops, but Apples, after a fine show of flowers, failed to set their fruits, owing, no doubt, to the dry weather experienced in May. One good point this season is the absence of Aphis, Black Currants being the only fruits attacked. The soil here is of a light nature, with a chalk subsoil. *W. A. Bright, Hughenden Manor Gardens, High Wycombe.*

—— There are good crops of most kinds of fruits in this neighbourhood, in spite of very bad weather during the whole of the flowering period, extremely cold N.E. winds, accompanied with severe frosts and snow showers, being prevalent throughout the spring. This only confirms the opinion of a good many observant gardeners, viz., that without the proper ripening or maturing of the fruit-bearing growths, a good crop of fruits cannot be expected. Severe attacks by caterpillars damaged Apples and Pears (especially the latter), but other kinds of fruit trees are fairly clean. The soil here is gravel, with a chalk subsoil, and dries up very quickly. *James Glasheen, Cliveden Gardens, Taplow.*

—— Fruits, in general, are of good quality and about average in quantity, being affected somewhat by the dry season. Strawberries suffered most from the late frosts, the majority of the first flowers being killed. The soil here is heavy clay. The trees are remarkably free from pests this year, more so than for a number of years past, and up to the present time spraying has not been necessary. *G. F. Johnson, Waddesdon Gardens, Aylesbury.*

—— The fruit crops here this year are well up to the average, except Plums, which are disappointing. The Plum trees flowered freely, but severe frosts during the flowering period completely destroyed the crop on all trees in the open. Trees on walls escaped somewhat, but the crop is a very light one. Apple and Pear crops are good, also Strawberries and all bush fruits. Peaches, Nectarines and Cherries are plentiful and well above the average. *F. Reid, Dropmore Gardens, Burnham.*

BUCKINGHAMSHIRE. — The fruit crops have suffered very much this season owing to late frosts, cold winds and the drought, especially standard trees. The rainfall for the first six months was 5·41 inches, which is far below the average for this district. *W. Turnham, Greenlands Gardens, Henley-on-Thames.*

CHESHIRE.—With the break in the prolonged spell of dry weather the fruit prospects have improved considerably. Culinary Apples are very promising, both as to quality and quantity. Gooseberries, Raspberries and Black Currants are very plentiful and the bushes are free from blight. Strawberries are improving, due to experimenting with some fourteen varieties and selecting the most prolific types. The Royal Sovereign strain shows no improvement in spite of new stock from certificated sources, and I have reluctantly resolved to discontinue its cultivation. The soil here varies from medium to heavy loam, the former resting on red sandstone, the latter on clay. The medium gives much the best results. *T. A. Summerfield, Alderley Park Gardens, Chelford.*

(*To be continued.*)

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Rosa rugosa var. repens rosea. — Regarding the reference made to above Rose on page 27, I beg to state that this was raised in our nursery about 1904, as the result of crossing Rosa rugosa with R. gallica. It is quite different from R. rugosa var. repens alba in foliage and flowers, although it has the same prostrate habit. Both plants make beautiful and distinct specimens as standards, and as such they are grown here on Rosa polyantha stems, which impart a wonderful vigour to the plants. *G. N. Smith, Daisy Hill Nursery, Newry.*

Change of Work.—Not long ago the Industrial Fatigue Research Board reported that the cause of fatigue lay not only in the muscles but in the nerve centres concerned, and advocated short breaks in monotonous work for the recuperation of these centres. I was present once at a meeting of professional gardeners, and one of them remarked that gardeners were always tired, a statement which seemed to be supported by the experience of the others. Many will agree that gardening in general is more tiring than average manual work, probably because much of it has to be done in a crouching or stooping position. Let us combine one of the Committee's findings with our own experience and see if we can be helped in the result. Much of the fatigue of gardening seems to be due not only to the pressure on the organs of circulation, breathing, and digestion, due to the cramped position, but to the length of time in the same position while doing the same work. Much of this is often of a dull, monotonous character, *e.g.*, cutting grass edgings, weeding, thinning or pricking-out seedlings, and the like. Thus there are three factors in producing fatigue in the ordinary sense—lessened freedom of action for vital organs; long periods in one position, and the using up of the energy of certain nerve centres in consequence of the demand upon them being so prolonged. And over all is the influence of the mind upon the body generally, the boredom induced by the same dull routine adding to the weariness of the body. It often happens in modern scientific discoveries that old-fashioned sayings and practices are now given a *raison d'être*, and so the explanation of the old saying that a change of work is as good as play is obvious. This is not the sole concern of professional gardeners, for amateurs, especially those who are getting on in years, feel the need of husbanding their resources in the matter of energy. More work can be done in a day and the fatigue at the end of it lessened if the work is varied occasionally instead of being confined to the same job the whole day. If one is digging in the winter—very laborious work, if done really well—an hour's digging can be alternated with a half-hour's pruning on the adjacent bush fruit plantation, while mowing the grass can be changed with tidying up a flower border near by or tying in the climbers on the walls of the house. Out-of-door work arrangements, of course, are often at the mercy of the weather, and seasonal work, especially in the early spring, has to be hurried sometimes when a long-delayed opportunity comes, but those who are free to build their practice on the above principles will scarcely fail to find benefit in increased work with lessened fatigue and more pleasure in doing it. *A. Petts.*

Gardening Fallacies.—I have been much interested and amused reading what *W. Auton* wrote (p. 50) about "Gardening Fallacies. "Fifty years ago, at my school, we sowed Mustard and Cress on flannel on the very broad window sills, yet now I see it sown in soil, and splashed and mudded. As to watering: many amateurs seem to love dribbling water constantly on plants with roots nearly a foot deep, and ask what I do in a drought like this year. I answer "What the farmers and nurserymen with acres do." Many of us (amateurs) would like to know a little more about artificial manures for various plants at different stages of growth. I have gleaned much already from your columns, but whether any artificial will help seedlings of Tulips (species) or of Lilies or other bulbs to attain flowering size only one year sooner than some take, would be useful information. As to hardiness and frost: those are things which puzzle many. In my glass porch last winter 10° of frost and more on two nights did not injure Heliotropes or Pelargoniums; they were covered with newspaper and (what I am told saved them) the soil was nearly dust dry. Outside, in the corner of the porch (a due south corner), Eccremocarpus remained green, and buried under bits of Gorse, covered with canvas, I had Agapanthus, Lemon Verbena, Schizostylis, Zauschneria, Dieramas, and such like tender things, uninjured, while neighbours' thermometers were near zero. We should like to know much about the most efficient garden tools for the many different purposes, and the experiences of some of your correspondents; a light, but strong, and rustless spade would be very nice for old men. Years ago a light one was advertised, but the dimensions were excessive and so it was useless, except for giants. I am sorry to read that some think a gardener too old after forty. My parents had an excellent gardener, over sixty, who followed on with another member of my family, growing all the necessary vegetables until well over seventy, and a year ago his experience was a great help—and a surprise. As to women gardeners, although I state it, my daughter is unsurpassed; although having an indoor nursery and housework, her garden is a revelation, all the work of her own hands in regard to flowers and vegetables, and she sent a large surplus to the hospital close to where she lives, a few days ago. *Vere Caldwell, Chandler's Ford.*

FOREIGN CORRESPONDENCE.

THE AMERICAN METHOD OF ROOTING CUTTINGS.

IN practically all American gardens, both commercial and private, pure, sharp sand is the medium in which almost all cuttings are rooted. Compared with the use of sandy soil such as is used in Britain for most cool-house and bedding subjects, and Cocoanut fibre, which is much favoured as a medium for use in stove propagating cases, sand has many advantages. In the first place, it is sweet, clean to handle, and is not liable to be infected with injurious fungi. Secondly, it may easily be kept suitably moist without any danger of becoming waterlogged. It freely admits the passage of air, which is essential to encourage cuttings to callus and emit roots. The danger of damping-off is minimised and the same sand may be used time after time for successive batches of cuttings, thus eliminating the necessity of mixing up fresh quantities of material for each lot of cuttings.

The sand used is of the finest quality and is similar to that known in England as "Bedfordshire Silver." Beds from four to six inches in depth are made up on the greenhouse benches when a properly constructed propagating house is not available, or if, as frequently happens in the busy season, this latter is fully occupied. The sand is watered and rammed firm, and if the cuttings are fairly large, such as of Carnations, they are inserted in the ordinary way with a dibber, but small, soft cuttings of Ageratum, Lantanas and similar subjects, are inserted in a more speedy manner—a manner more in conformity with the popular conception of American "hustle." With the aid of a straight-edge, a straight slit an inch or two deep is cut with a piece of ordinary glass, or a knife, in the moist sand. The cuttings are then picked up one by one with the left hand, pushed into the open slit, and the sand is closed firmly about their bases with the fingers of the right hand. As soon as a row is finished the straight-edge is laid parallel with it, and a slit cut for the next row. The rapidity with which cuttings can be inserted by this means is surprising to the uninitiated, and the results obtained are excellent. So soon as all the cuttings are inserted they are well watered to settle the sand around them, lights are placed over them, and shade from bright sunshine is provided, and under this treatment they root very quickly. It is, of course, necessary to pot them into a more sustaining compost so soon as they are rooted.

It will probably surprise many English gardeners to learn that not only are Carnations, Lantanas, Cineraria maritima, Ageratum, Chrysanthemums, and such like propagated thus, but even Pelargoniums respond equally as well to this somewhat unusual treatment. The usual plan followed by British gardeners with these plants is to partially dry them, and then to insert them in pots or boxes of sandy soil and stand them in a frame or even in the open, in full sun, the idea being to avoid at all costs a moist atmosphere which might encourage damping-off. Yet here, they are dibbled in thickly, and covered with lights and shaded from the sun so that they are in a temperature of anything from 70° to 95°, and in an atmosphere saturated with moisture. Under this treatment a percentage of rooted cuttings as high as ninety-five or even more is obtained. I am strongly inclined to think that Pelargoniums would root equally as well in Britain if treated in like manner, and as rooting takes place very quickly, I believe that many growers could advantageously follow the Americans in this respect. *T. H. Everett, Pleasantville, New York.*

VEGETABLE GARDEN.

THE GOMBO.

THE Gombo is not a novelty, its uses as a vegetable having been described so long ago as 1854 by M. Léon Farrier, but it is not much grown in this country, although its cultivation seems to have expanded considerably in France in recent years, there being an increasing demand for it in the Paris "restaurants de luxe."

Gombo is the young and tender capsular seed-vessels of Hibiscus esculentus and is extensively used as a table vegetable throughout the British West Indies, South America and some parts of North America. The tender young pods are very mucilaginous, but make a palatable dish when cooked whole, or they may be cut into slices and used in soups and sauces, and served in these forms they are highly esteemed by the natives; they also enter largely into the composition of salads, in both the cooked and the raw state, and, in the latter particularly, they are considered to have valuable stomachic properties.

An annual plant, native of South America, its cultivation outside in this country is uncertain. In the South of France it succeeds out-of-doors, when raised inside and planted out and, under very favourable conditions, this might be possible in the south-west counties, but, like the Egg-plant, it requires the assistance of artificial heat to ensure safe cropping. *A. M. W.*

SOCIETIES.

NATIONAL CARNATION AND PICOTEE.

(Northern Section.)

The sixth Annual Exhibition was held in the Cutlers' Hall, Sheffield, on August 10; it was opened by Miss Maurice, Park Grange, Sheffield, who was presented with a shower bouquet of Carnations by Miss Jean Sectier. Councillor Gascoigne, of the Corporation Estates Committee, presided, and Alderman Wardley, when proposing the vote of thanks to the opener, declared, "People who do not love flowers, music and children, have no souls, are a source of danger, and you want to keep your eye on them, for they are not completely human." Dr. Guy H. Mead, President, said that the exhibition had a twofold object, to help the local blind, and to advance the progress of the National Carnation Society; they wanted amateurs to understand that the border Carnation was a hardier plant than the spring Cabbage. Carnations were not fastidious as to position or soil; many of the blooms exhibited, particularly in the amateurs' open border classes, were grown within one mile of the great city's steel works.

The show itself was held in conjunction with the Sheffield Gardeners' tribute to the Blind Flower Show, and as it proved a tremendous success, it is hoped that in a short while a considerable sum will be handed over for the use of the blind of the city.

Mr. J. Macfarlane, Airdrie, Scotland, was the most successful exhibitor, being awarded the Silver Cup for an amateur's display of border Carnations; in this display a bowl of Kelso was outstanding, and commanded the admiration of almost every visitor to the show; other varieties of merit were Florence Grisby, Mrs. Edmund Charrington, Sam Griffiths, Mrs. D. Thomas and Ebor. Mr. Macfarlane also took eight first prizes in the open classes.

Premiers were awarded to Mr. J. Macfarlane, for a yellow self Peter; a white ground Fancy, Steerforth; a Clove-scented variety, Steerforth; a yellow ground Fancy, Linkman; and a Fancy other than white or yellow, Sam Griffiths; Mr. S. Rabjohn showed the premier Picotee, Exquisite.

The Silver Cup presented by Mrs. G. H. Mead was awarded to Mr. Macfarlane, for Linkman; this bloom was stated to be the best Carnation ever exhibited at a Northern Section show, easily outclassing some excellent examples of Mrs. Edmund Charrington, this latter variety having obtained the award at all five previous shows.

In the amateur classes (Division I), Mr. Wilfred Secker (Secretary) secured the principal awards, winning the President's Challenge Cup and the Society's Silver Medal for the third year in succession, also winning a Silver Medal for the best bloom of Jean Secker in the show, first prize for the best vase of white ground Fancies, with a vase of Monica, Woodpark and Mrs. Edmund Charrington; and a special prize for the best bloom in this division with a fine specimen of Florence Grisby.

Mr. Secker led for three Selfs, dissimilar; Mr. W. H. Rhodes, for three Fancies; Mr. H. E. Pearson, for yellow-ground Fancies; Mr. W. Secker, for three white ground Fancies; Mr. W. Secker, for three Clove-scented Carnations; Mr. W. H. Rhodes, for three Picotees; Mr. W. Secker, for four vases of one variety; and Mr. W. Secker, for twelve blooms of Selfs and Fancies.

In Division II, Mr. S. Rabjohn was awarded the Society's Silver Medal for the highest points obtained, and received the first prize in each of the eight clases.

Mr. G. T. Evans, Mr. G. Camish, Mr. B. Marrison and Mr. G. H. Rotherham were also prize-winners.

The National Carnation Society's Certificate was awarded to Mr. Wilfred Secker for six blooms of Selfs and Fancies; Messrs. Clay and Sons' Special Prize was also awarded to Mr. Secker in this class.

Other special prizes presented by Messrs. Lowe and Gibson, Torrance and Hopkins, Mr. S. Pye and Mr. H. Swan, were awarded to Mr. S. Rabjohn, Mr. W. Secker, Mr. G. T. Evans, Mr. G. Camish and Mr. B. Marrison.

Mr. H. E. Pearson was awarded a Gold Medal, and Mr. S. Rabjohn a Silver Medal for displays of border Carnations.

First Class Certificates.

Miss Horn.—Rose-pink, Clove-scented; this received 97 points out of a possible 100, and is easily the best Clove-Self exhibited to date. Raised by Messrs. Torrance and Hopkins, Busby, Glasgow.

Mrs. G. Hill.—A white-ground Fancy, marked with rosy-scarlet. Raised by Mr. G. Hill.

Glenshee.—A white-ground Fancy, heavily marked crimson. Raised by Mr. J. Macfarlane, Airdrie, Scotland.

Awards of Merit.

Jean Secker.—A yellow-ground Fancy marked and edged with lavender and scarlet. Exhibited by Mr. Wilfrid Secker, Sheffield.

Ben Beswick.—A salmon-rose Self. Raised by Mr. G. Hill, Hillsbrough, Sheffield.

Glenfarg.—A buff-ground variety suffused with salmon-pink. Raised by Mr. J. Macfarlane.

BRITISH GLADIOLUS.

August 13.—The London Show of this special flower society, which was held in conjunction with the fortnightly meeting of the Royal Horticultural Society, in the New Horticultural Hall, Westminster, was not equal in size or the quality of the exhibits to the shows of the two previous years. It may be that the exhibiting members are reserving their chief energies for the show which is to be held at Southport next week. Considering how fully alive the present management of this recently-revived Society evidently is to the value of publicity in most directions, it was a little surprising to find that the educational possibilities of this show were rather neglected. It is to the exhibitors' cards that the average visitor looks for the information as to the objects of the various classes, but at this show the cards contained no clue to the object of the class beyond the group letter and the class number. This necessitated reference to a schedule, and schedules were not readily available. We suggest that the British Gladiolus Society might well follow the example of most of the older special flower societies and indicate the requirements of each class on the exhibitors' cards. Eight very fascinating novelties received Awards of Merit.

Awards of Merit.

Distinction.—A very fine, rich orange-coloured, large-flowered variety. This, and the two following, was shown by Messrs. R. H. Bath, Ltd.

Old Rose.—A very beautiful, medium-sized, large-flowered variety of rosy-salmon colouring, shaded with carmine and white in the tube.

Rival.—A medium-sized, large-flowered variety of good form. It has a large, rosy-carmine blotch on white ground.

Leen Wone.—A very showy, flaming orange-coloured Primulinus variety, probably the finest of its colour yet introduced. Shown by Major George Churcher.

Tapestry.—A splendid large-flowered variety. The pink ground colour is shaded with heliotrope and speckled with a darker shade of heliotrope. There is a reddish shading to the throat. Shown by Messrs. Kelway and Sons.

Jack Izod.—A large-flowered variety, probably best described as a crimson Purple Glory, but with larger flowers and of better form and substance. Shown by Messrs. W. J. Unwin, Ltd.

Scarlet Flame.—A Primulinus grandiflorus hybrid, and its name aptly describes the colouring of its shapely blooms. Shown by Mr. H. Prins.

Van.—A Primulinus grandiflorus variety, deep buff, with amaranth-purple lines on the lower petals of the wide open flowers. Shown by Mr. A. E. Amos.

Silver-Gilt Medals.

Mrs. M. Rumsey,—Deep ashes of Rose, flaked flame, lower petals blotched deep lake. A large flower of good substance and much rounder petals than usual. Shown by Messrs. W. J. Unwin, Ltd.

Pink Gem.—An outstanding Primulinus grandiflorus variety, with rose-pink, white-veined flowers, shaded with cream in the throat. Shown by Messrs. R. H. Bath, Ltd.

Silver Medals.

What Joy.—A large-flowered variety, the blooms being white, with canary-yellow blotches and deep purple pencillings in the throat. Shown by Messrs. W. J. Unwin, Ltd.

Geoffrey Henslow.—A Primulinus grandiflorus hybrid, deep coral-red, the white blotch being striped with the main colour and with faint primrose pencilling. Shown by Messrs. Kelway and Sons.

Bronze Medals.

Anne Croke.—A Laciniatus seedling, much larger than previous laciniated varieties. Shell-pink, darkening in flakes at the petal tips to rose, with slight pencillings in the throat. Shown by Major George Churcher.

Penelope.—Light magenta, the lobe petals having white blotches with deep purple pencillings. Shown by Messrs. Kelway and Sons.

Open Competitive Exhibits.

The best exhibits of eighteen Primulinus varieties, either introduced since 1926 or not yet in commerce, was staged by Messrs. R. H. Bath, Ltd., and included good spikes of Coral Queen, May Queen, Browse Delight and Spitfire. Major George Churcher, Lindfield, was second. In the class for twelve distinct spikes of "Florist and/or Commercial Varieties, Large-flowered and/or Primulinus (all sections)" the first prize was won by Messrs. W. J. Unwin, Ltd., who showed Thomas Edison and Purple Glory of considerable beauty. Major Churcher, who was second, included Dante and Laciniatus, an uncommon little fringed variety; Messrs. W. J. Unwin, Ltd., were also first in the class for three spikes each of large-flowered varieties, where they included splendid spikes of Bertie, Snow and Mount Everest. Mr. W. Yandell was second, and his best variety was Duchess of York.

There were seven colour classes for the large-flowered varieties, and in these the first prizes were awarded for the following:—Pink: Pink Perfection, shown by Messrs. W. J. Unwin, Ltd. Purple: Purple Glory, shown by Mr. H. Prins. Red: Red Emperor, shown by Messrs. W. J. Unwin, Ltd. Salmon: Prince of Wales, shown by Mr. W. Yandell. White: Mount Everest, shown by Messrs. W. J. Unwin, Ltd. Yellow: Golden Eagle, shown by Mr. H. Prins. Fancy: Hinemowa, shown by Mr. H. Prins.

Five spikes were required of each variety shown in the colour classes for Primulinus varieties, where the first prizes were awarded:—for Lavender: Taurus, shown by Mr. H. Prins. Pink: Shell Pink, shown by Messrs. W. J. Unwin, Ltd. Salmon: Salmon Beauty, shown by Messrs. W. J. Unwin, Ltd. White: White Butterfly, shown by Major George Churcher. Yellow: Souvenir, shown by Messrs. W. J. Unwin, Ltd.

Amateurs' Classes.

In group B, the first prize for three distinct varieties of the large-flowered Gladiolus, without blotch, was won by Mr. W. H. Pritchard, Chippenham, with good spikes of Flaming Sword, Phenomenon and Jacoba van Beierven. Mr. P. Bauchop, Alexandria, who showed Sultan, Margaren and Canicule, had the best three varieties, with blotch. Mr. L. C. Adkins, Chelmsford, showing Orange Queen, Alice Tiplady and Butter Boy, was first with three

Primulinus grandiflorus varieties. Mr. S. H. Gregg had the best six Primulinus varieties in two vases, and Mr. E. W. Hoyte was first with three varieties shown in one vase. Showing Sappho, Miss C. Anderson, Wantage, was first for a smoky variety. Prince of Wales, shown by Mr. H. Strutt, Colchester, was the best pink. Miss C. Anderson was first with Purple Glory. Mr. A. E. Amos was first with Red Emperor. Lutetica, shown by Mr. P. Bauchop, was the best white, and Schwaben, shown by Mr. E. W. Hoyte, was the best large-flowered yellow. In the colour classes for Primulinus varieties, Major G. Churcher, showing Dante, was first for a lavender; with Dew Drop, for a white, and with Ethylyn, for a yellow. Mr. R. B. Long, Maidstone, had, in Gelinotte, the best pink. Krelage's Favourite, shown by Mr. S. H. Gregg, Bowes Park, London, was the best red, and Orange Beauty, shown by Mr. E. W. Hoyte, was the best yellow.

In Group C., Mr. W. H. Pritchard, who included excellent spikes of Flaming Sword and Prince of Wales, was first with a very good exhibit of six large-flowered varieties. Mr. L. C. Adkins was first with good spikes of Sweet Lavender, Pride of Haarlem and Dr. van Fleet, in the class for three varieties. Mrs. Hennell, Ash Rectory, Kent, who included Chickabee, Maiden's Blush and Sheila of good quality, was first in the class for six Primulinus varieties. Mr. S. H. Gregg, Mr. R. B. Long, Mr. L. C. Adkins and Major George Churcher also won first prizes in this section.

In the Decorative classes, Mrs. W. Yandell, Maidenhead, had the best vase of large-flowered Gladioli. Messrs. W. J. Unwin, Ltd., were first with a good bowl of Primulinus varieties, and Mrs. W. Yandell was first with a tasteful exhibit in the well-contested class for three bowls of Primulinus varieties, and Miss Churcher was a good second.

The Piece of Plate offered in the special class for amateurs, was won by Mr. W. E. Phillips, Wood Green, with twelve handsome spikes representing the different sections.

SCOTTISH NATIONAL SWEET PEA, ROSE AND CARNATION SOCIETY.

(Provincial Show.)

August 15, 16 and 17.—The provincial show of this Society, which this year took place in conjunction with the show of the Royal Horticultural Society of Aberdeen, at Aberdeen, was a great success. The propaganda carried on by this branch of the parent Society in visiting year by year various centres is bearing good fruit, and all connected with the work deserve the heartiest congratulations. The exhibits were finely staged, the awards plainly and legibly set forth, for all of which thanks are due to Mr. John Smellie, Helensburgh, the enthusiastic and veteran grower, and the Secretary and Treasurer of the Society.

Sweet Peas.

The great tussle of the show was for the best twenty-four vases of Sweet Peas, and it proved a "bonnie fecht," but each and every one of the competitors came out of it with honour untarnished, and the feeling that they had put up a gallant effort. Annie, Lady Cowdray (gr. Mr. William Smith), Dunecht, Aberdeen, was awarded first place for a striking entry. There is little doubt Mr. Smith made a supreme effort. Included in his varieties were fine cleanly-grown specimens of Royal Mauve, Jessie, Jay Blue, Pinkie, Charming, Magnet, Charm, What Joy, Vectis, Purple Monarch, Montrose, Treasure, Hero, Colorado and Elizabeth. Mr. J. B. Campbell, of Newport, who was second, had little need to be ashamed of the fine work he accomplished, for he beat that renowned grower, Mr. John Grigor, Banff, who in turn beat Messrs. Torrance and Hopkins, Busby, an eminent Sweet Pea growing firm.

Mr. Grigor took leading honours for the best six vases of Sweet Peas, novelties of 1929. His winning entry included fine examples of Elizabeth, Orange Picture, Porcelain, Flamingo, Jaye and Vectis. There was a kind of see-saw result among the competitors for the honours in the single variety classes. Leading places were taken for cream, by Mr. James Macintosh, with Picture; crimson, Mr. Smith, Dunecht, with Honour; cerise, Mr. Grigor, with Glorious; white, Messrs. Torrance and Hopkins, with Model; orange-scarlet, Mrs. Lewis Harper, with Grenadier; lavender, Mr. Grigor, with Powerscourt; purple, Mr. Smith, with Purple Monarch; and mauve, Mr. Grigor, with Royal Mauve. For any other colour, one variety, Mr. Smith led the way with Colorado. He had also the honour of furnishing the best vase of Sweet Peas in the show, with beautiful samples of Lilac Queen, and he also provided the best vase of any 1928 or 1929 variety with a fine sample of Glorious. Altogether it was a red-letter day for Mr. Smith, and he received hearty congratulations.

Roses and Carnations.

Roses made a fine display, and those eminent growers, Messrs. Adam and Craigmile, Aberdeen, Messrs. D. and W. Croll, Dundee, and Mr. R. C. Ferguson, Dunfermline, had all a look in, but the great majority of the leading prizes went to Messrs. Adam and Craigmile, who annexed seven firsts.

In border Carnations, Messrs. Torrance and Hopkins practically swept the boards. The leading honours for perpetual-flowering Carnations went to the Dunecht Gardens for very fine examples.

Altogether, it was a delightful show, and gave unfeigned pleasure to all who had the good fortune to visit it.

KING'S WALDEN HORTICULTURAL.

This Society's show was held on August 7, and surpassed previous records in regard to entries and the number of visitors. Considering the serious effects of drought in Hertfordshire, the increase of entries by over two hundred is remarkable. In fact, the judges were surprised at the wealth of flowers and the quality of the vegetables.

Two interesting new features were the model miniature gardens (open class) and the essays on "My Garden" (by children).

In the open division, Mrs. H. E. Dunhill (gr. Mr. E. Howard), Harpenden, led for nine vases of Sweet Peas, and Captain Flower, Welwyn, was second. Among eleven entries for table decorations, the awards were made in favour of Mr. A. J. Pulham, Mrs. Creasy and Miss G. Wheeler, in the order named. For a collection of vegetables, Mr. T. C. Sell, Gaddesdon, won the premier award, closely followed by Captain Flower and Mr. E. Sutton.

In division B., which is confined to a radius of five miles, the leading competitors were Mr. W. Muddle, Mrs. Creasy and Mrs. Gunner.

In the local classes the principal prize-winners were Mr. H. Bodsworth, Mr. S. Todd, Mr. J. Wood, Mr. E. Field, Mr. E. Swain, Mr. W. J. Willcox and Mr. E. Sutton, all of whom were faced with keen competition.

The displays made by the trade were again of a high standard. Messrs. Wheeler, and Messrs. Harkness and Co. showed good stands of Roses. Messrs. R. and G. Cuthbert presented a large and brilliant display of Gladiolus primulinus. Messrs. W. Cutbush and Son also showed Gladioli in a large group of herbaceous flowers. Other exhibits were those from Mr. Clarence Elliott, rock garden; and Messrs. Cannon, artistic floral display.

Major J. F. Harrison (gr. Mr. A. J. Hartless), also put up large groups of vegetables and fruits. Messrs. Latchmore staged an interesting exhibit of coloured photographs of well-known gardens, and of flower groups.

The Secretaries—as in former years—responsible for the arrangements were Messrs. A. J. Hartless and W. G. P. Clark.

The Luton Red Cross Sports and the opening of the Bury Grounds added to the day's enjoyment.

Obituary.

Sir E. Ray Lankester.—By the passing of Sir Edwin Ray Lankester, zoology and biology, and to a lesser degree botany, have lost one of their oldest and most distinguished adherents. Sir E. Ray Lankester died at his house in Chelsea on August 15, at the advanced age of eighty-two, and his death will be lamented by a wide circle of friends and admirers. He commenced his education at St. Paul's School, went to Downing College, Cambridge, at the age of seventeen, but migrated to Oxford in his second year, where he graduated with first-class honours in natural science, and gained the Burdett-Coutts scholarship in geology and the Radcliffe Travelling Scholarship in 1870. He then went to Naples and worked at zoology and in 1872 was appointed Fellow of and Lecturer at Exeter College. He was welcomed to London on the occasion of his appointment as Professor of Zoology at University College, London, in 1874, by Huxley and many other leading scientists; in 1890 he was appointed Linacre Professor of Comparative Anatomy at Oxford, and in 1892 he was appointed Director of the British Museum (Natural History) and Keeper of Zoology, from which posts he retired, at the age of sixty, in 1907, in which year he was President of the British Association. He was a member of the Royal Society, and upon his retirement was created a K.C.B. He was a staunch follower of Darwin, and was also keenly interested in Mendel's experimental work in hybridising cultivated plants, while he was also a very prolific author, among his works, which remain as a memorial to him, being *Science from an Easy Chair*, published in 1910; *The Kingdom of Man* (1907), and *Great Things and Small*, published so recently as 1923.

William Latimer.—Mrs. Jervoise, of Herriard Park, Basingstoke, has suffered a great loss by the death of Mr. Latimer, her gardener, which took place on the 7th inst. He was with Mrs. Jervoise when she laid the foundation of her collection, which by his care and whole-hearted devotion he brought to a very high standard.

Mme. de Vilmorin.—We regret to learn of the recent death of Mme. de Vilmorin, widow of the late proprietor of the famous French nursery firm of Vilmorin-Andrieux et Cie. Mme. de Vilmorin, who was in her eighty-first year, died at Verrières-le-Buisson, the scene of her late husband's labours, in which for over fifty years she rendered him faithful and affectionate assistance.

ANSWER TO CORRESPONDENT.

Weeds on Canal Banks.—*C. A. F.* Poisonous or arsenical weed-killers distributed over the weeds, by a can with a rose on it, are the most powerful in destroying coarse weeds, but they would be dangerous to dogs and other animals as well as the fish in the canal. The arsenic could easily get washed into the water by heavy rain. We have seen this happen in a river, where waste lime with chemicals in it got dumped on the river bank. Many dead fishes were floating on the water lower down. Many firms have non-poisonous weed-killers that are harmless to domestic animals, etc., but their action might have an adverse effect on the fish, if washed into the canal, because fish pass so much water through their gills in breathing. It might be possible to dig up the larger tussocks of Rushes and cast them aside to dry, after which they could be burnt on a bonfire, which could be kindled by means of the cut weeds when they are dry. Another plan would be to cut over the Rushes close to the soil, after the young stems have grown nearly full size. This would weaken the Rushes considerably for the following year, when the cutting could be repeated. All the green portions of the stems should be cut, as then little or no food would be stored in the roots.

Communications Received.—G.—A. H.—H. F.—H. M.—R. B.—C. P.—G. B.—K. F. R.—H. C. W.—G. S. T.—H. F.

THE
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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 59·5°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, August 28. 10 a.m. (Greenwich time). Bar. 30. Temp. 70°. Weather, fine.

Hugo de Vries.

All botanists and students of genetics are glad that the Linnean Society this year presented the Linnean Medal to Professor Hugo de Vries in appreciation of the conspicuous value of his contributions to biology. It was nearly sixty years ago (in 1870) that de Vries published his first thesis on the influence of temperature on plants and since that now distant day he has pursued his botanical researches unremittingly and with great benefit to botanical science. The most remarkable of de Vries's earlier contributions to botany were concerned with osmotic pressure. Another great physiologist, Pfeffer, had shown that the sap enclosed in plant cells exercises a remarkably high pressure on the walls of each cell, and that owing to this pressure the soft walls of the cells are stretched almost to the limit of their elasticity, with the result that although a plant tissue, such as a leaf, may consist of 95 per cent. of water and other plant tissues of an even higher percentage, nevertheless the plant maintains its form, successfully opposes high pressures brought to bear upon it and may exhibit extraordinary feats of strength in the way of piercing and lifting stones. Hugo de Vries used the plant itself to confirm Pfeffer's discoveries. He measured the amount of pressure required to unstretch the plant—to plasmolyse it as botanists say. So soon as the water is withdrawn from the cell-sap the cell shrinks—as may be seen when a thin slice of plant tissue is examined under the microscope—and it is easy both by direct and indirect methods to ascertain what pressures must be exerted in a plant cell in order to make it begin to lose water and shrink. By such experiments it has been found that the pressures maintained in these minute fluid compartments, or vacuoles, which compose living plants are enormous. Thus, in the Beetroot, according to de Vries, osmotic pressure may be so great as twenty-one atmospheres (that is 640 lbs. to the square inch). This wonderful picture of plant cellular structures with which we are all now more or less familiar we owe mainly to the genius of de Vries. In his later period, still happily proceeding, de Vries turned his attention to plant breeding with no less important results than those which attended his earlier purely physiological researches. He discovered the fact that the characters which distinguish two varieties of plant, although they may seem to blend in the first generation of a cross between the varieties, may segregate in the second generation—a discovery which was the very keystone of Mendel's doctrine of heredity. Thus, although the credit for the all important discovery remains with Mendel, it is pleasant to remember that de Vries reached a similar conclusion, and independently. Since these discoveries de Vries has extended knowledge of genetics by a series of masterly investigations of the behaviour of Oenothera and other species and hybrids. Besides his own contributions to botanical science, de Vries has inspired many others, both by his pupils and by those whose perusal of his published works has imbued them with enthusiasm for research. Thus around the genus Oenothera a remarkable and vast literature has grown up; much of it, doubtless, of fleeting importance, but some of it of fundamental value to genetical science. Professor de Vries combines to an only too rare degree the powers of research and of exposition. It is a pleasure to learn from him no matter how intricate the subject may be on which he discourses. It is an impressive fact that one of the men who helped to lay the foundations of genetical science is still alive and leading the ever-growing army of researchers who are making such determined and successful attacks on the secrets of heredity.

Southport Show.—The sixth Annual Show held in Victoria Park, Southport, is rapidly reaching completion as these notes are written, for on the morrow (August 28) everything must be ready betimes as judging commences early and the Show Committee of the Southport Corporation is desirous of having every award card in position ere the public is admitted at 10.30 a.m. The majority of the fifty judges have already arrived and will meet the Mayor, Aldermen and Councillors at the Town Hall this evening. At least one set of judges will begin work shortly after 7 a.m. to-morrow and, with an interval for breakfast, will continue until their arduous task of making awards to the non-competitive exhibits is accomplished. This sixth show occupies an enormous space and is of special interest because it includes the exhibition of the British Gladiolus Society—which has fifty-five exhibitors and three-hundred-and-seventy-five separate entries; and the *Daily News* Sweet Pea Show—which numbers forty-seven exhibitors and six-hundred-and-fifty-eight entries. Taken as a whole, Southport Show has over five thousand entries (including several hundreds in the young folks' section for wild flowers and grasses), or about five-hundred more than in 1928. The huge display is housed in a large marquee which provides an area of 77,280 square feet, and five auxiliary marquees, with a total of 43,200 square feet. In addition, the Lancashire County Council Education Department fills a tent of about 800 square feet, while horticultural exhibits outside the tents and marquees occupy 28,000 square feet, and the horticultural sundries section occupies, approximately, 25,000 square feet of space—a grand total of 174,280 square feet. In all departments the sixth Southport Show promises to exceed in extent and quality all its predecessors. Leading nurserymen, seedsmen and private exhibitors have foregathered at this Lancastrian seaside garden city where Mr. Clark, the Parks Superintendent, has provided beautiful floral displays in the parks and along the front, while Alderman E. Wood, Councillor Crankshaw and the Show Committee, with Mr. T. E. Wolstenholme, the Secretary, have such a finely organised system of management that everything moves smoothly and everybody seems happy and busy. To-day, Tuesday, August 27, the weather is ideal, pleasant and not too warm, and if such climatic conditions continue there should be a record attendance and the exhibits will retain their beauty until the show closes at 9.30 p.m. on Friday, August 30.

Amorphophallus Titanum flowering at Kew.—Visitors to the Royal Botanic Gardens, Kew, during the last few days have had an opportunity of seeing a plant of the Giant Aroid, Amorphophallus Titanum, flowering in No. 10 house of the T range, which contains the large Lily tank wherein are the Victoria regia and several other tropical Water Lilies. Although it is not so large as the plant which flowered at Kew in 1926, it is, nevertheless, quite a good specimen, the height to the top of the spadix being about three-and-a-half feet; the tuber of this plant was received from a correspondent in Sumatra in May, 1927. The first specimen of Amorphophallus Titanum to bloom in Europe flowered at Kew in 1889, in which year it was described and illustrated in *The Gardeners' Chronicle*. The inflorescence on that occasion had a total height of six feet nine inches. In our issue of November 1, 1924, we published an extended account of this interesting Aroid, together with a series of illustrations showing the inflorescence at various stages of development, from Mr. P. Dakkus, Curator of the Botanic Gardens, Buitenzorg, Java. Other plants of interest in the Victoria regia house at the present time are Passiflora quadrangularis and Thunbergia grandiflora, which are flowering freely, and a large fruiting specimen of Typhonodorum Lindleyanum.

Bournemouth's Exhibition of Economic Plants.—Upon his retirement from Reading to Bournemouth, about three years ago, Dr. J. B. Hurry took with him his extensive collection of economic plants, and presented it to the Bournemouth Corporation. These plants, and others, have been taken great care of by the Corporation, and each summer a collection of them is exhibited in the Central Square Gardens, and proves a source of attraction to many visitors. Among the plants displayed this summer were Tea, Coffee, Cinnamon, Bananas—Musa Cavendishii and M. Basjoo; Hevea brasiliensis, Ficus elastica and F. Schlecteri (Rubber plants); Olives, Myrtle, the Loquat, the Pomegranate, Cocaine, Cocoa and Mango, together with fruiting specimens of Monstera deliciosa and the Guava.

Hop-picking in the Medway Valley.—Reports from the Medway Valley state that the Hop-picking season is in full swing and a record crop is anticipated. Special arrangements have been made this year for the comfort and health of the pickers, including special facilities of the treatment of "Hopper's rash" and "Hopper's eye," complaints which, although not dangerous, are painful, and result from picking Hops.

The London Daffodil Show, 1930.—The Royal Horticultural Society will hold its annual Daffodil Show on April 15 and 16, 1930, in the R.H.S. Hall, Greycoat Street, Westminster, and all entries for the competitive classes must reach the Secretary of the Society not later than by the first post on Saturday, April 12, but earlier if possible. Exhibitors wishing to stage non-competitive exhibits of Daffodils must send applications for space to reach the Secretary not later than by the first post on the Wednesday preceding the show. The staging of exhibits must be completed by 10.15 a.m. on April 15; judging will commence at 10.30 a.m., and the show will be open to the public from 1 p.m. to 7 p.m. On the second day, the show will open at 10 a.m. and close at 5 p.m. Copies of the Schedule, which embraces ninety-one classes, divided among eight sections, may be obtained on application to the Secretary of the Royal Horticultural Society, Vincent Square, London, S.W.1.

Playing Fields for Norwich Housing Estates.—Since the War, the Corporation of Norwich has erected over 3,000 houses, several estates having been developed, and in each of these, areas have been laid out as playing fields, bowling greens, etc., while, with a view to encouraging gardening, a garden competition, with substantial money prizes, is held annually.

Largest Cacao Trees in the World.—A very interesting account of "Historical Cacao in British Guiana" is given by Prof. J. Sydney Dash, Director of Agriculture, British Guiana, in *The Agricultural Journal of British Guiana* for June, 1929. Prof. Dash describes a visit he paid to Coomacka, where are the remains of a Cacao plantation that is referred to in *Timehri* (Vol. III, 1884), by the Hon. E. Howell Jones, as follows:—"One cannot leave this district without paying a visit to Coomacka, as I venture to think that here will be found some of the largest cocoa trees in the world; and my friend Mr. Nind, who accompanied me, is sure that there are none like them in Trinidad; not trees to suit a cocoa planter, but wild, luxuriant overgrown specimens, samples of what a cocoa tree if left to itself in suitable soil will grow to. Some of these trees, groups of gigantic stems, are from fifty to seventy feet high, with branches extending sixty-seven feet, and measuring at a distance of five feet from the ground, nine feet five inches in circumference. One single stem which we carefully measured had a circumference of three feet four inches. Few pods grow on these trees, but what there is of them are large, of the yellow variety, containing an average of forty beans." In 1913 the late Sir John Harrison visited this site and in an official report adds the following comment to the description given above:—"Now many of these past giant cacaos have fallen, but along each fallen trunk new trees, many of them thirty to forty inches in circumference have sprung. The cacao appears to me after very careful examination to be all of one type and to be quite pure in type. It is the strain or type formerly known as Golden Caracas, probably the best cacao in the world. The pods are green in the earlier stages, passing through light yellow, and yellow to a full glistering golden-yellow when mature. The husks are thin and the beans full, round and of excellent quality. There is not a speck of colour other than golden-yellow on the fruit as pendent from the trees. It is now an exceedingly rare occurrence to find cacao which is absolutely pure bred of any desired type. Here we appear to have a supply of pure bred cacao of one of the most desirable types. I think we ought to take steps to utilise it." Harrison also drew attention to the fact that a similar Cacao is described by Schomburgk, whom he quotes:—"Near the Quitaro river we had to cross numerous swamps abounding in a species of cacao (*Theobroma bicolor*[*]). The large melon-shaped fruits of all sizes, some green, some of bright yellow, were eagerly collected by the Indians, who, however, did not appear acquainted with the fine aroma which the seed itself possesses. We collected a number of seeds of which I counted as many as sixty in one capsule. They afforded us for some mornings the most delicious cup of cocoa I ever tasted. It is remarkable that cocoa in its wild state is only found in swampy, or at the best, moist situations. The trees which I observed, although of a peculiar growth, almost shrubby, and the trunks less developed than in large forest trees, often attain the height of fifty feet. The capsules were large and contained from sixty to seventy seeds, which were larger than in the cultivated kind but not so thick." Prof. Dash's observations confirm, in a general way, the description given of the trees growing in an abandoned state at Coomacka and he states that in spite of the disease and dense undergrowth one cannot but be impressed by the remarkable growth of the trees, of which, according to a report made in 1917, there were two hundred in an area of one-and-three-quarters acre.

Dr. F. V. Darbishire.—Dr. Francis V. Darbishire, who has charge of the Chemistry section of the work at the Royal Horticultural Society's Laboratory, Wisley, was born at Dwygyfylchi, near Penmaenmawr, North Wales, on August 1, 1868, and is the second surviving son of the late Vernon Darbishire, Esq., J.P. After attending a private school at Manchester, he finished his education at a school at Dresden, in Saxony. He took an honours degree in chemistry and his B.A. at Oxford as a member of Balliol College, and his Ph.D. degree, also in chemistry, at Leipzig University. He was then consecutively Assistant Lecturer and Demonstrator at Cardiff, Manchester University and Wye College, Kent. After studying the Beet Sugar business on the Continent he was appointed chemist to a Beet Sugar factory in North Germany, from where he was sent as a civilian prisoner to Ruhleben during the War, and remained there for over three years. Shortly after his release, early in 1918, he came to the Royal Horticultural Society, at Wisley, in August, and since 1920 he has continued, as his successor, the work of Mr. H. J. Page when he removed to Rothamsted; this work includes the analysis of samples for the Fellows of the R.H.S. Dr. Darbishire has published several books, reports and papers. Among the latter is one on oxidation, published at Wye College; it contains the earliest suggestion for partial sterilisation of soils by means of heat and weak antiseptics.

DR. F. V. DARBISHIRE.

Walnut Competition.—In instituting a Walnut competition—which is to take place at Vincent Square on November 9—the Royal Horticultural Society is doing work of considerable national, as well as horticultural, interest, and should, therefore, receive all possible help from the Fellows and others who can afford it. Gardeners readily understand that as the majority of Walnut trees in this country are seedlings, they vary considerably, for each seedling is a distinct variety. The Nuts borne by many compare unfavourably with imported Nuts and as a result, the bulk of the Nuts consumed in this country are brought from abroad. This state of affairs is likely to continue until such time as good varieties adapted to our climate are found, propagated by grafting, and grown commercially on an extensive scale. The object of the competition is to discover good varieties. And when they are found it is proposed that shoots from which scions can be made should be sent to the East Malling Research Station, East Malling, Kent, and there grafted for distribution. Therefore, one of the conditions of the competition is, that successful competitors shall (if desired) supply twelve shoots from each prize-winning tree from which scions for grafting can be made. Each competitor who sends scions will, in due course, receive two of the young trees obtained from his scions, and the remainder of the young trees, if they prove satisfactory, will be used for the further propagation of the variety. The scheme has the cordial approval of the Ministry of Agriculture, which has provided part of the money for the prizes, and Mr. Howard Spence, a recognised authority upon Walnuts, has very kindly undertaken to carry out the preliminary examination of the Nuts sent for competition, and to assist in the final judging. Anyone who has one or more Walnut trees may have a variety worthy of extended cultivation, and, therefore, all who grow Walnuts, whether they are Fellows of the Society or not, are invited to compete and thus assist the Society in its search for varieties of outstanding merit that will prove economically valuable. Full particulars of the competition—for 3 lbs. of fresh and 3 lbs. of dried Nuts, respectively—may be obtained from the Secretary, R.H.S., Vincent Square, Westminster, S.W. 1. The Schedule contains the scales of points that will be used for judging each class.

Young Gardeners in Leipzig.—On August 17 and 18 a re-union took place at Leipzig of members of the German "Young Gardeners' Association." This is the first occasion on which a combined meeting has been held of young gardeners drawn from all parts of Germany, but doubtless it will now become, if found practicable, an annual fixture.

Belgian Florists' Annual Excursion.—On August 4, the Belgian Florists' Association held its annual excursion, which consisted of a long drive through some of the most beautiful scenery of the Belgian Ardennes, finishing with luncheon at La Concession, the country mansion of M. Odon Warland, Hon. President of the Association and well known as the proprietor of the cigarette works near Brussels where the enormously-popular "Boule Nationale" cigarettes are manufactured by the million. The excursionists, eighty-nine in number, left Brussels at 7 a.m., and arrived at La Concession at 2.30 p.m., an hour-and-a-half after the appointed time, but they were none the less warmly welcomed by M. and Mme. Warland, and the luncheon was thoroughly appreciated by the guests. After coffee and liqueurs on the terrace, the guests visited the model farm attached to the château, and the beautifully-tended gardens, after which they returned thanks to their host and hostess and embarked in a fleet of motor-cars for the homeward journey.

Parks and Botanic Gardens Superintendents' Association.—The members of the London and District Branch of this Association will visit Messrs. Sutton's trial grounds and seed establishment at Reading, on Tuesday, September 10. The party will leave by motor-coach, starting from the Elephant and Castle Station (Southern Railway) at 9 a.m. Park Superintendents and their assistants who would like to go should communicate with the Secretary of the London Branch without delay.

The Comte de Kerchove.—We learn from the Belgian press that the Comte de Kerchove de Denterghem, who has been elected a member of the Belgian Senate, has resigned his position as Governor of East Flanders. Those of our readers who attend the Quinquennial Shows in Ghent will be familiar with the tall, commanding figure of the Comte, who has always taken a leading part in the exhibitions, and in Belgian horticultural affairs generally. As a member of the Chambre, he has always been zealous to defend the interests of horticulture whenever they have appeared to be threatened, and no doubt, as a Senator, his good offices will be continued. An appreciation of the Comte de Kerchove, together with his portrait, appeared in our issue for March 3, 1928, p. 148.

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[*] His use of "bicolor" is open to question, the term being applied to a distinct species of no economic value.

Rose Show in Koburg.—On July 27, an interesting exhibition of cut Roses was held at Koburg, Germany, organised by the local horticultural society. In spite of the extreme dryness of the weather preceding the show, excellent displays were made, particularly by W. Kordes Söhne, Sparrieshoop; G. Wöhner, Koburg; C. Gramm, Weimar; M. Krause, Alveslohe; H. Lindecke, Remagen; Viktor Teschendorff, Cossebaude; and M. Leenders and Co., Steyl, Holland. It was remarkable that most of the newer varieties shown were either yellow, flesh-coloured, or of similar tones; good, new, dark-red Roses were—as they usually seem to be—of rare occurrence, although Portadown (raised in 1928 by Messrs. S. McGredy and Son) was of a good, clean, deep red colour. Marquise d'Andigné (Leenders, 1927), scarlet-carmine-red, and Souvenir d'Alexandre Bernaix (P. Bernaix, 1926) were also good dark reds. Two unnamed red novelties shown by W. Kordes Söhne, seemed good, but judgment must be reserved until their behaviour in the open can be observed. Frau Dr. Rebhuhn, raised by the same firm, attracted much attention; it resembled Gruss au Koburg in colour, orange-reddish-brown shading to deep golden-yellow, and is apparently of strong growth; the form of the flowers was good and the stems firm. The new Pernetiana Rose, Julien Potin (J. Pernet-Ducher, 1927) was shown by the firm of Kölle, Heilbronn; it resembles Souvenir de Claudius Pernet in colour, but has an advantage over that variety, as it has not the tendency in bad weather to fail to open. Another Pernetiana novelty was Ville de Paris (J. Pernet-Ducher, 1927). Probably the Rose most seen was the favourite Mevr. G. A. van Rossem, a fine, strong, golden-yellow variety.

Royal Caledonian Horticultural Society's Autumn Show.—The annual Autumn Show of this Society will be held on September 11 and 12, in the Waverley Market, Edinburgh, and will be opened by the Countess of Haddington. In addition to the usual cash prizes, which have been increased considerably this year, and trophies, there is the John Phillips Memorial Challenge Trophy, valued at sixty guineas, presented by Mrs. Phillips, of Edinburgh, in memory of her husband, who died in 1917, while President of the Scottish Horticultural Association, which is now incorporated with this Society. The trophy is for six bowls of Roses, not more than twelve blooms in each bowl and not less than six varieties, the bowls and displayers to be supplied by the Society. Another additional trophy is the Thomson Challenge Trophy, for Grapes. A special feature of this show is the Abol Challenge Trophy competition; this trophy is offered for the exhibit which demonstrates the greatest advancement since the war in any one family or kind of flower, fruit, vegetable, tree, shrub or foliage plant. From the number of entries already received it is assured that the show this year will be a record one. Prize schedules may be obtained from the Secretary of the Society, 4A, St. Andrew Square, Edinburgh.

"The Gardeners' Chronicle" Medals.—*The Gardeners' Chronicle* Silver-gilt Medal, for the best display of rare plants or flowers staged at the Royal Horticultural and Arboricultural Society of Ireland's Summer Show, on August 7, 8 and 9, was awarded to Captain Lewis Ryall (gr. Mr. T. Webster), Old Conra Hill, Bray, Co. Wicklow. The Silver-gilt Medal presented by *The Gardeners' Chronicle* for competition at the recent Shrewsbury Floral Fête, was awarded to the Rt. Hon. Lord Swaythling (gr. Mr. F. J. Rose), Townhill Park, Bittern, near Southampton.

Gift to Waite Agricultural Research Institute, South Australia.—Munificent bequests by public-spirited citizens have enabled South Australia to prosecute scientific research investigations into primary industries on a scale befitting the importance of such work in a State which is mainly dependent on its rural production for its prosperity. A generous legacy left by the late Mr. Peter Waite led to the establishment, in 1925, of the Waite Agricultural Research Institute, where much valuable scientific inquiry has been undertaken. A subsequent gift of £10,000 by Sir John Melrose, has assisted in the erection of a chemical laboratory in which research work is being carried on in conjunction with the Waite Institute. Recently the Commonwealth Council of Industrial Research proposed to make the Waite Institute the Commonwealth's centre for soil research, and suggested that if capital was forthcoming to build the necessary laboratories the council would provide the equipment and be responsible for the cost of staff and maintenance. Mr. Harold Darling, head of the milling firm of Messrs. John Darling and Son, has, on behalf of himself, brothers and sisters, contributed £10,000. The Darling family previously gave £15,000 to the Adelaide University for medical laboratories in honour of their father.

Mr. A. E. Tylecote.—We learn that Mr. A. E. Tylecote, one of the founders of the Guildford and District Gardeners' Association, will leave England on September 3 for a six months' holiday in Australia. Mr. A. E. Tylecote (gr. Mr. Long) was awarded *The Gardeners' Chronicle* Silver-gilt Medal at the recent show of the above Association for a grand collection of Sweet Peas.

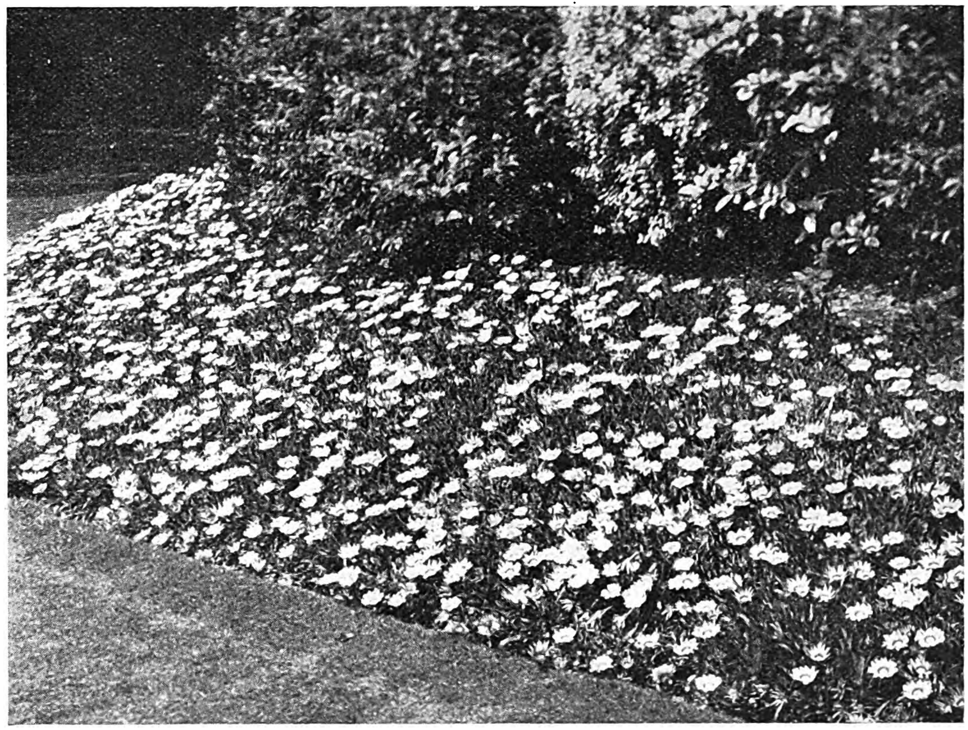

FIG. 79.—GAZANIAS IN ST. JAMES'S PARK, LONDON.

(see p. 163).

Appointments for the Ensuing Week.—TUESDAY, September 3: Salford Flower Show (three days); Royal Caledonian Horticultural Society's meeting. WEDNESDAY, SEPTEMBER 4: Royal West Renfrewshire Horticultural Society's Exhibition (two days); National Carnation and Picotee Society's meeting; Rotherham and District Horticultural and Chrysanthemum Society's meeting; Gainsborough Allotment-holders' Association's meeting. THURSDAY, SEPTEMBER 5: Newtownards Horticultural Society's Exhibition; Bideford and District Horticultural Society's meeting; Abergavenny Horticultural Association's Annual Exhibition; North-east Coast Flower Show (three days). FRIDAY, SEPTEMBER 6: London Allotments and Garden Society's Exhibition (two days). SATURDAY, SEPTEMBER 7: Alnwick Horticultural and Industrial Society's Exhibition; Leeds Paxton Society's Dahlia Show.

"Gardener's Chronicle" Seventy-five Years Ago.—*The Curl in Peach Trees.*—The aphis may easily be got under by the use of Tobacco-water, and attention. The Tobacco-water may be obtained from a manufactory if you should live near one! but I find it quite as economical to buy the Tobacco and make the water myself, as I am obliged to pay nearly as much for jar, carriage, and porterage as the water costs. I get a pound of the best shag Tobacco, which costs 3s. 6d., and a pound of soda, which costs 1½d., and dissolve the soda in two gallons of boiling water; it is then poured on the Tobacco, stirred, and allowed to remain a few minutes; the liquor is then strained, and two gallons more of boiling water added; this is again strained, and made up to about eight gallons by the addition of cold water, and put on the trees at 100° of heat, on a still, moist evening (if one can be found at that time of year). This is applied with a fine syringe, and the quantity is sufficient for twelve trees, each occupying 140 feet of wall. If you have shading materials at hand, the trees may be shaded, in case the sun breaks out strongly. The mixture may be left on till the next evening, when the engine should be used pretty freely, in order to wash off not only the mixture, but also the dead and dying insects, and as many as possible of those that the mixture does not kill, which, if properly applied will be few. But if shading be inconvenient, the engine and clean water must be used in the morning following the application of the Tobacco and soda, or the sun, being assisted by the crystals of the soda, may scorch the young leaves. The engine and clean water should be used frequently, to dislodge any insects that may be again establishing a colony on any part of the tree. It has been computed by, I think, Bonnet, that an aphis will multiply itself in one season 8,000,000 times, if left undisturbed in a favourable situation; and of all places, I know of none more favourable to them in the early part of the season, than the Peach tree; hence the necessity of observing the old proverb, that "a stitch in time saves nine." The trees will rarely want more than one dressing of Tobacco, if well attended to with clean water after the first application—or, at the outside, two dressings of Tobacco will suffice for one season.—*Cox on the Peach and Nectarine.*—*Gard. Chron., September* 2, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Coelogynes.—Plants of the beautifully-coloured C. pandurata, also the hybrid C. burfordense, that have just passed out of flower, will require some attention at the roots, as new roots will be observed to be pushing from the partly developed growths. Being of a rather rambling habit, the plants are best accommodated in long, teakwood baskets. Some of the old back pseudo-bulbs should be removed to keep the plants in a limited place, while coarse Osmunda fibre and Sphagnum-moss form a suitable rooting medium, inserting lumps of charcoal as the repotting proceeds to keep the compost porous. The plants will thrive well if grown in a moist and shady position in the warm house, where the surroundings and baskets may be syringed occasionally. Water should be afforded sparingly at the roots until they are well established, when the supply should be increased each time the compost approaches dryness. As the season advances, more light should be allowed to reach the plants, although shade should be afforded from strong, direct sunshine during the winter months. C. pandurata requires very little water at the roots to keep it in a normal condition; if too much water is afforded to these Coelogynes during the resting period, decayed roots and unsightly spotting of the foliage will result, and often the loss of the plants. Plants of Coelogyne cristata are growing rapidly and established specimens will require ample supplies of water each time the compost approaches dryness. An occasional application of weak liquid manure is beneficial at this stage until the pseudo-bulbs are developed, when more light and air will be required to assist the ripening of them. Those plants that were repotted late in the season and are not yet established in the new compost should be watered very sparingly, only clear water being used. Shade them from direct sunshine, and the surroundings should be kept moist by damping between the pots; an occasional spraying overhead on fine days is beneficial.

Shading.—The season has now arrived when most of the Orchids will require more sunlight and air to help the growths to mature well in order to withstand the winter without damage, and also to ensure the production of good flowers. As the sun declines in power the blinds should be lowered later and removed earlier in the afternoon; allow the plants to receive so much light as possible without injury to the foliage. Permanent shading that has been used on the glass in conjunction with the blinds should now be removed, as the blinds themselves will provide sufficient shade.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Early Dessert Apples.—There can be no doubt that Apple Irish Peach, when well grown, is the best first-early dessert Apple we have, but its culture, and the pruning in particular, is not perfectly understood by all who possess this excellent variety. It is essentially a "tip-bearing" variety, and for that reason the winter pruning differs from that of most other varieties. In fact, there should be very little, if any, winter pruning, any pruning required being put off until mid-June, or until the trees have cast all imperfectly fertilised fruits; then, any twigs not carrying fruits may be cut back as desired, and so maintain vigour and form in the trees. The next Apple, in order of maturity, is Beauty of Bath, and this should be grown by all who appreciate an early Apple. The fruits from both these varieties should be eaten direct from the trees, otherwise, if they are kept for any length of time, the flavour will be lost. The variety Lady Sudeley comes next, especially the scarlet-fruited sort, which is of very handsome appearance, and of fairly good flavour. This fruit is best eaten fresh from the trees, but will keep for a month in the fruit-room without loss of flavour. We have some bushes of Langley Pippin here, which were budded on Paradise type VI, in 1923, and are now bearing a fair crop of very handsome, highly-coloured fruits. This variety is the result of a cross between Gladstone and Cox's Orange Pippin, both remarkable for high flavour, which is passed on to the offspring. Another highly-flavoured Apple is Ellison's Orange. It is sometimes described as an early Cox's Orange Pippin, which is one of the parents, and which it resembles in shape and colour; the season is October and November. There are few varieties of Apples that bear so consistently as James Grieve. Year after year, it never fails to bear a crop of handsome fruits, which are lemon-yellow in colour, striped with red. The flesh is tender, very juicy, and of good flavour. It should be in every collection on account of its reliability, and is in season during September and October. Another variety which bears with remarkable regularity is Worcester Pearmain. The colour of the fruits is a brilliant scarlet to crimson, consequently it is one of the most popular market Apples in its season. The flesh is crisp, although rather tough, but sweetly-flavoured. It is at its best during September and October.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Early Peaches.—As the trees in early and succession houses are cleared of fruits, prompt attention to pruning, cleansing and the rearrangement of the shoots will be necessary. As a general rule, all superfluous growths which have borne fruits should be removed, as they interfere with the ingress of light, and now is the best time to cut them away. When this has been done it will give a good deal more room and will enable the operator to cover all the bare stems with young shoots and foliage, the best of all shields against the hot sun. If the wood is fairly strong and the foliage good, little or no stimulants will be needed; on the other hand, trees which from age or heavy cropping show signs of weakness, may be stimulated by liquid manure and light dressings of artificial fertilisers in preference to organic manure. If lifting or root-pruning of trees in early houses is contemplated, now is the time to make active preparations for carrying out the work. Fairly heavy loam should be secured in readiness and corrected by the addition of burnt clay and lime-rubble, with a sprinkling of bone-meal, according to the quality of the compost. Good drainage is the first and most important step in the formation of all fruit tree borders, and the space left for the reception of the compost may range from twenty inches deep, if the staple soil is heavy, to thirty inches where it is light. Successional trees cleared of fruits in the early part of August will have ample time for ripening their wood, and should have plenty of air by day and night. They should be kept thoroughly moist at the roots, and constant attention should be given to removing all surplus wood so soon as the trees are cleared of their fruits. Gather the fruits early in the day when dry and cool, and for home use about twenty-four hours before they are wanted.

Late Peach Houses.—Trees whose fruits are swelling very fast should be well syringed early on fine mornings, and again after the ventilators are closed. Pure soft water equal to the mean temperature of the house should always be used. If fly is troublesome, night air, after light fumigation may be omitted, but the trees should be well syringed before the sun strikes the house the following morning. As the fruits show signs of ripening, heavy syringing and night damping should be reduced, but by no means discontinued, and more air may be admitted, if possible. These trees should be kept exceptionally thin, no shoots being retained which will not be wanted next season. Root lifting in these houses, be the roots inside or out, should always be performed before the trees show signs of becoming gross in growth.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Winter-flowering Begonias.—These are now in various stages of growth and while some are becoming well-established in their flowering pots, others will require attention with regard to further potting, but there is one great advantage attaching to these useful plants and it is that they may be flowered well in sixty-sized pots or up to a twenty-four, by judicious feeding. Fumigate the plants frequently to keep mite in check, as no plant will thrive if this pest is present.

Repotting old Cyclamens.—Where these have been saved for growing on another season they should now receive attention with regard to being placed in their flowering pots. In these gardens we select a few of the best colours for growing on the second season; these give a succession of flowers to those that are raised from seeds, and in most cases a wealth of bloom is secured. After potting, place them in a cold frame which should be shaded and kept rather close for a short time to encourage root action. Water them sparingly for several weeks, but the plants may be sprayed frequently to encourage growth. Cyclamens are subject to attacks by aphis, mite and red spider; the first two may be kept in check by light fumigations with XL All compound, while the latter may be kept at bay with Volck, used strictly according to directions.

Souvenir de la Malmaison Carnations.—These delightfully-scented Carnations are not grown nearly so much in these times as in the past, partly owing to the popularity of the perpetual-flowering kinds. They undoubtedly make a welcome change to these latter sorts and can be timed to fill in the gap between the first and second crop of flowers of the same. Where they were propagated by layering during July they will soon be ready for lifting and potting, but several days before proceeding with this work, the layers should be severed from the old stock and the soil well watered, so that they can be lifted with all their roots attached. Those that have rooted freely may be placed in three or four-inch pots, while those that have made less roots should be potted in sixties. The potting compost may consist of good, open loam, with plenty of old mortar-rubble and coarse sand added, and it should be moderately dry to allow it to be made fairly firm by ramming. After potting, stand the plants in a cold frame, which should be kept close for a few days and shaded from bright sunshine. When it is found the plants have established themselves in the new soil, admit air freely and grow the plants under the coolest conditions possible.

Pelargoniums.—Varieties of the Show and Regal Pelargoniums that have been kept out-of-doors should now be cut hard back and laid on their sides for a week or so to ensure a complete rest before repotting them into smaller receptacles. It is always advisable to root a few cuttings of these each year to keep up a vigorous stock, and the best shoots should be selected for this purpose. These will soon form roots if stood in a cold frame and protected from heavy rains. The required number of old plants should be repotted into smaller receptacles so soon as they show signs of breaking into new growth; they should then be stood in a cool house, in a light position close to the roof-glass, and allowed plenty of fresh air. Cuttings should be potted singly into small pots when well rooted, and treated in the same manner as the old plants.

Caladiums.—As these finish their growth they should be gradually dried off, but in doing so it is not wise to subject them to low temperatures.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Turnips.—Encourage the recently sown plants to make quick growth. Thin the seedlings early and stir the soil frequently about them with the Dutch hoe. Should the Turnip fly be troublesome, dust the plants with soot or fine wood-ashes.

Leeks.—Fill any vacant ground with this vegetable, for although the season is getting late for planting, Leeks make rapid growth in autumn and come in for spring use, when other vegetables are scarce. Early plants may have assistance with applications of liquid manure. The tips of the maincrop plants should be cut off and soil drawn up around the necks of the plants to assure a good length of blanched stem.

Lettuces.—Prick out further batches of Lettuces in sheltered corners, using hardy varieties which will withstand the winter.

Spinach.—More Prickly Spinach may be sown to provide plants for spring use. When large enough, thin the seedlings to a reasonable distance apart. A dressing of soot between the lines will assure well coloured foliage.

Potatos.—Second-early varieties may now be lifted and placed in store, thus clearing the ground for spring Cabbages. Manure the ground and dig it well, and after digging, give a dressing of slaked lime, working it well into the ground with a fork before planting the Cabbage crop.

Seakale Beet.—Where this crop was sown late, the seedlings should be thinned to a suitable distance apart. The thinnings may be transplanted.

Beetroot.—Early Beetroots should be lifted and stored in ashes in a cool place, for if left in the ground they become too large for use.

Carrots.—Early Carrots may be lifted and stored in sand, for if left long in the ground and heavy rain occurs they will split and will not keep any length of time in store. Lift this crop when the weather is dry.

Chicory.—The Chicory plants will now be growing fast, and later-sown plants which have not yet been thinned should receive attention in this respect at once; allow plenty of room between them to encourage the formation of large crowns for forcing.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Hardy Perennials.—Border plants raised from seeds should be planted out in their flowering quarters so that they may have time to establish themselves before the winter. Such subjects as Aquilegias, Delphiniums, Pyrethrums and Primulas of all kinds should be so treated except in the most uncongenial circumstances, when it may be advisable to defer the planting until March.

Chrysanthemums.—Early-flowering Chrysanthemums in pots should be housed when the flowers show colour, as rain soon does irreparable damage. After removing any unsightly leaves the plants should all be sprayed with a one per cent. solution of lime sulphur to prevent attacks by mildew after housing. A good dry day should be chosen so that the plants become quite dry, before being placed indoors, after which abundant air should be given night and day. Feeding should cease as the flowers show colour, but on no account must the plants be allowed to become dry at the roots.

Violets.—Plants which are being grown for frame culture should receive encouragement by frequent hoeing, the removal of all runners, and a good dressing of manure—dried blood for preference. Where possible, copious watering and spraying in hot weather should be practised, and should red spider appear, spraying with lime sulphur should be carried out.

Roses.—The surface of Rose beds should be hoed, and many of the smaller buds removed to increase the size of the flowers retained. Feeding of Roses, either with natural or artificial manures, should now cease, or the growth may be rendered too soft to withstand the winter. Where the growth is very luxuriant a dressing of potash, either as wood-ashes or sulphate of potash, will help to firm it up; the latter fertiliser should be used at not more than one hundredweight per acre.

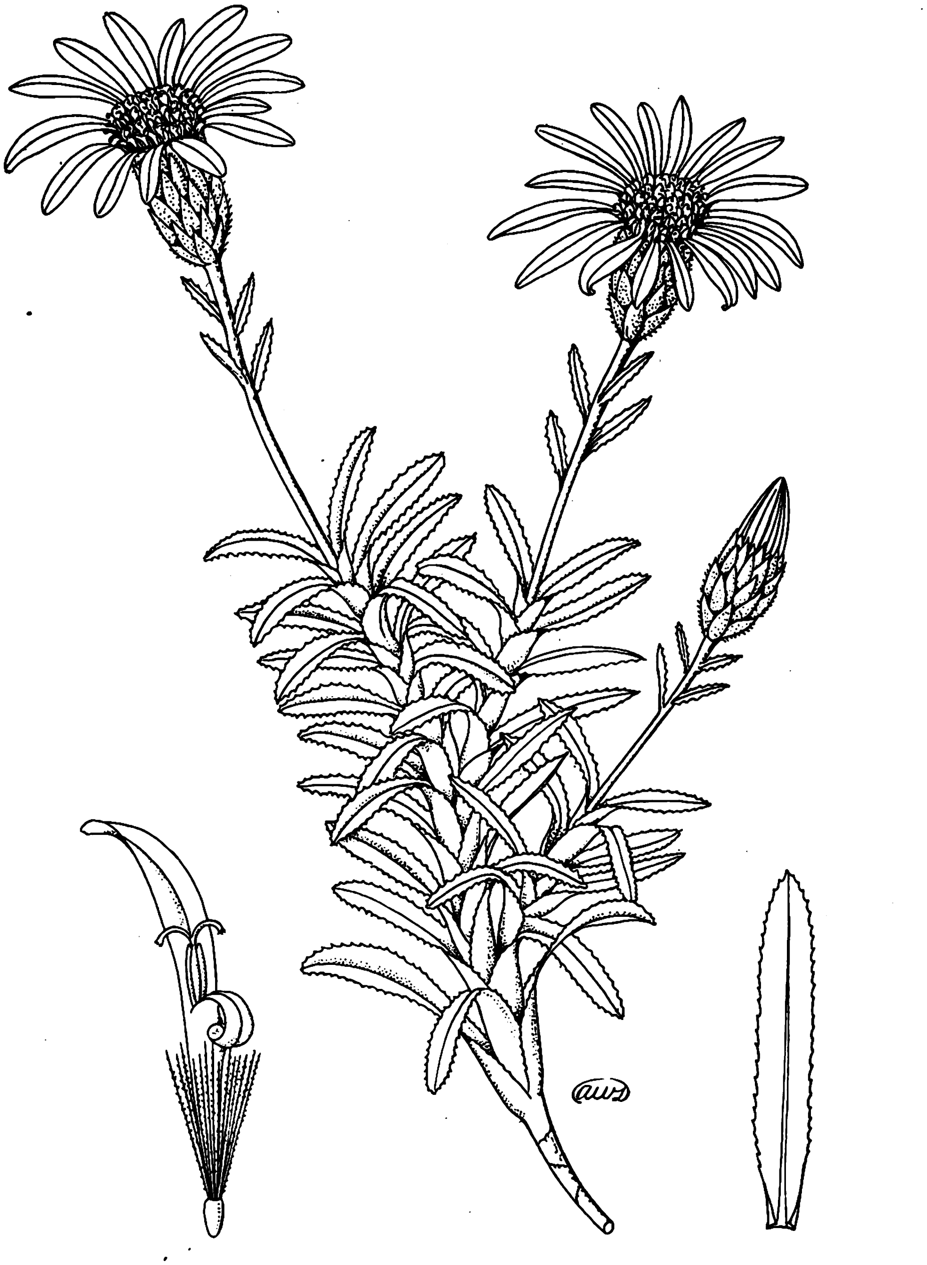

FIG. 80.—PEREZIA RECURVATA.
(see p. 165.)

Propagating Herbaceous Plants.—Many of these can be increased by cuttings put in now in cold frames, and plants so raised give finer results than old clumps. Anthemis, Achillea, Phygelius, Centranthus and many others of like growth lend themselves to such treatment. Others, such as Crambe, Anchusa, Verbascum, Oriental Poppies and so forth, are easily increased by root-cuttings, which may be secured at any time now. Short pieces of the moderately thick roots should be cut into lengths, not over two inches, cut square above and pointed below, tied in small bundles and buried in sharp sand in odd corners out-of-doors. These will form calluses in a short time, when they may be potted singly and grown on in frames until large enough for permanent planting. Others, such as Salvia pratensis, Heucheras, Lychnis, Viscaria, etc., soon deteriorate if left in large clumps, and in our northern climate it is not judicious to break them up in autumn, for planting in the open, so that it is well each year to plant a few of the better-class things in frames of light soil where the slight protection so afforded allows them to become established and ready for planting in March, or later, as may be found convenient.

Strawberries.—When sufficient stock has been secured and heeled in in nursery lines, either on a south border or in a frame, the latter for preference, the beds should be cleared of runners and the surface broken up between the rows. On heavy soils shallow "pointing" is the best and speediest way of getting the work done. If the soil is poor, a good soaking of liquid manure, or a dressing of dried blood, should be given to build up the crowns before growth ceases.

Morello Cherries.—These have again been a heavy crop, and as the fruits are gathered all old wood should be cut away, retaining sufficient young shoots to replace them. Stone fruits suffer less from pruning when the leaves are present than when in a dormant state. Shoots which have reached the top of the wall should be cut away, as spurs are not required on Morellos. On no account should young shoots be tied to older growths so as to form layers of growth, as one sometimes sees, or the vitality of the trees may suffer.

ALPINE GARDEN.

ROSA ROULETTII.

It was with a considerable amount of trepidation that I consigned my solitary plant of the tiny Rosa Roulettii to the open rock garden without any protection last autumn, and had I known of the ordeal of an almost arctic winter which was then before us my hesitation would have been greater still. However, any fears I had were dispelled when this wee Rose came into leaf, and in the third week of June this miniature "Queen of flowers" gave several of its delightful little warm pink flowers. I observed last year a note upon it to the effect that the blooms were crimson, but this is an error, unless there are two or more forms.

These flowers, unlike what one expected from a Rose bearing a botanical specific name, are double, and this year my plant produced them on a tiny bush, some four or five inches high. Now that the hardiness of R. Roulettii seems to be established beyond reasonable doubt it will surely find its way into many a rock garden. One has a vision of thirty, forty or fifty plants forming a group. To the writer this vision will probably remain a phantom indeed, but the possibility will present itself to some who might make a feature of this "smallest Rose in the world," as it has been called, probably with truth. It is not plentiful in the market as yet and one can only hope that over-propagation may not render this little gem less hardy than it has been.

SEDUM EWERSII.

This Sedum is classed by Mr. Lloyd Praeger in his classification of the Sedums in cultivation in what may be called his third group, the first being those very common in cultivation, the second those common, and the third, eleven species which follow in frequency. I think this will be the general experience of those who have worked to any extent upon the Sedums. Mr. Lloyd Praeger classes S. Ewersii in "Series II, Humiliores," and in "Group I, Arctuatae," and gives in his review of the genus, which appeared in the R.H.S. *Journal* for May, 1921, full particulars regarding S. Ewersii, and I must acknowledge my indebtedness to this admirable contribution for much information regarding the plant.

It is a native of the western Himalayas to the Altai, Soongar and Mongolia, is hardy, and flowers in August and September. As Mr. Lloyd Praeger states, it is distinguished among the purple-flowered Sedums by its semi-trailing habit and opposite pairs of clasping leaves. It is a true herbaceous perennial, dying back in winter to a branched, twiggy root-stock. The fleshy, glaucous leaves are entire or faintly toothed, and the flowers are purplish-pink, in cymes. It is a most distinct species and is easily identified after being seen once or twice. Offered as S. Ewersii var. turkestanicum or simply as S. turkestanicum, what is stated to be a darker variety of S. Ewersii appears in some catalogues; Mr. Praeger states: "None of the plants which I have seen under the name were in any way distinct, or worthy of varietal rank."

I had at one time a plant sent as S. turkestanicum, but so far as I remember, it did not differ from S. Ewersii as I then knew it, or what I at present cultivate.

There is, however, a distinct variety, now described by Mr. Lloyd Praeger, which he calls var. homophyllum, and which is to be found in gardens as S. cyaneum, quite a different plant, the name cyaneum being usually wrongly applied to S. E. var. homophyllum. It is a curious little plant almost identical with the type, but dwarfer and with the flowers not borne on the clasping-leaved shoots of the type, but on what answer to the barren shoots.

As a garden plant S. Ewersii is of considerable value. Its late-flowering habit renders it of considerable worth for the rock garden, and it looks well there, but better still on the face of a double wall with earth between, or on a retaining wall. I am growing it at present under the former conditions, and a good plant proves quite a pleasing addition to the attractions of such a wall, associated with other Sedums, encrusted Saxifrages, Gypsophila repens and other rock plants. S. Ewersii may be raised from seeds or propagated by cuttings. *S. Arnott.*

CAMPANULA ARVATICA.

If this delightful Campanula is not one of the easiest, it can hardly be classed among the "difficult." I have had it for a good many years, during which it has not only proved its perennial nature, which was once doubted, but has shown itself capable of surviving some of the most trying winters experienced in our generation. Here it prospers on a sloping, westerly edge which is thoroughly well-drained, the soil being stony with a dry retaining wall immediately below it.

Campanula arvatica is exceedingly dainty in growth, its slender stems trailing lightly over the ground for the space of a few inches and emitting throughout the middle of summer a succession of lovely, wide-rayed stars of a soft purple. The small, pale green leaves, which are rounded and slightly notched, are few, the entire plant suggesting a model of fragile delicacy. This charming little Bellflower is, of course, an ideal rock garden plant and one that should never be omitted from the choicest collection. It is stated to grow on limestone in its native Spain, but it has never had more than a little old mortar with me and even that it could probably do without. *N. Wales.*

CORONILLA CAPPADOCICA.

This essentially sun-loving plant obviously enjoyed the tropical conditions which prevailed during the early part of the season, for it is seldom that one sees it so florally effective as it has been this year. From a perennial rootstock, the annual stems creep along the surface, branching, and forming a thicket of prostrate, terete growths, the tips of which may rise six inches from the surface. It flowers as it creeps along, the umbels nestling in a glaucous mat formed by the long, narrow, imparipinnate foliage. The seven to nine individual blooms in each umbel are in a single row, of one plane, forming a ring one-and-a-half inch in diameter. They appear to be clear yellow, until, looking closely, it is seen that dark rays pencil the standard petal of each flower.

The method of propagation recommended is by division of the roots, in early spring, but, as with other members of the Leguminosae, this operation requires to be carefully performed. It may also be raised from seeds, which should be sown so soon as ripe. The young plants should be planted in light, calcareous soil in their permanent positions the following spring, choosing, for preference, a warm, sunny, well-drained pocket in the rock-garden. *Jonathan Fiona.*

SOME DECORATIVE ALLIUMS.

Mr. Arnott's note on Allium triquetrum (p. 29), followed by *M. W.'s* on A. narcissiflorum in your issue of July 27 (p. 67), brings to mind a crowd of other excellent plants belonging to this huge Liliaceous race, from wee A. Purdomi to giants like A. albopilosum, and giving flowers in many shades of colour—yellow, white, blue, lilac, pink and crimson. There are about 350 species known. Of those in cultivation, it is only possible here to "select out a few for this our garden whose flowers for their beauty of stateliness, form or colour are fit to be entertained and take place therein," as Parkinson states in his *Paradise in Sole*, omitting such as "will hardly abide the extremity of our sharpe winters." They are mostly of easy culture, given a light soil and a sunny place, although many do equally well in half-shade, and some can fend for themselves under almost any conditions, even becoming weeds.

To this latter class belongs A. Moly, the golden Lily Leek of Pyrenean woods. This has been long in English gardens. Parkinson knew it well and, describing it in pre-Linnean fashion as Moly montanom latifolium luteo flore, remarks upon its quickness of increase. The leaves are glaucous, "neare the bignesse of a reasonable Tulipa leafe" and like one in shape. The large flowers are gathered into broad, flat umbells upheld by sturdy nine-inch stems, and make a brilliant show of yellow for the front of the border. The plant multiplies rapidly and is one of the most useful Garlics we have, being cheap, easy, vigorous and beautiful. It flowers in early June.

About the same time comes the huge and globular, dull purplish heads of A. karataviense, a Turkestan species for any odd corner, where its paired, glaucous leaves will be very attractive during April and May. Also June-flowering, and from Turkestan, A. Ostrowskianum is an alpine of great merit indeed, capping its six-inch stems with umbels of bright rosy flowers. These are more or less triangular in shape the three inner segments being much smaller than the outer three, and their colour is a beautiful warm pink, very different from the "rich dark red violet" of Farrer's description. The leaves are narrow and channelled, and about four inches long. A. Ostrowskianum is not difficult, although too choice and small for anywhere but a sunny position on the rock garden.

A. albopilosum brings us back to the herbaceous border, where its massive balls of lilac are always sure of attention, however spidery the individual flowers may be with their six long and narrow segments radiating from the ovary like the spokes of a wheel. This Persian Garlic is a plant of astounding size, its head measuring about nine inches across, and the stem towering to five feet. A. Rosenbachianum is another border plant with lilac flowers, more graceful than A. albopilosum and not so tall.

Coming to English gardens from Siberia, A. azureum (A. coeruleum) sends up in June, from its narrow, grassy foliage, slender stems of eighteen inches, each tip-clustered with a ball of bright blue flowers. These "drumsticks" are very handsome, but their stalks are so liable to snap in the wind that it is advisable to give them a sheltered position. Flowering with A. azureum, but possessed of, as yet, no official title, A. sp. Thibet, is a neat Garlic, which grows about nine inches high, and has narrow, linear leaves. Its flowers are tubular and small, forming a drooping umbel of reddish-purple.

A. cyaneum and A. kansuense resemble A. sp. Thibet, in general habit, bearing their blue flowers in graceful, pendant clusters at a time when colour on the rock garden becomes daily more precious, and when all of their kindred, except A. roseum and A. sphaerocephalum, have finished flowering. The latter has big, conical heads of crimson flowers, with a few leaves sparsely sheathed around the base of its two-feet stalk. It makes a fine border plant and can be used with effect on the rock garden, in association with Thymes. A. cyaneum and A. kansuense are smaller than this, A. kansuense, swinging its bells on stems from nine to twelve inches high while A. cyaneum rarely rises above six inches. They both come from the steep hillsides of Kansu and are so closely allied that Regel at one time considered them forms of the same species, A. cyaneum being distinguished as A. cyaneum var. macrostemon by the way its stamens project beyond the cup of the perianth, and A. kansuense as A. cyaneum var. dasystemon, since the stamens here remain within the permanently tubular flower. This is the Allium illustrated as A. cyaneum var. macrostemon in Farrer's *English Rock Garden*. It has tapering, channelled leaves and starts flowering a week or more ahead of A. cyaneum. Its flowers are coloured a clear and delicate blue, like that of Agapanthus umbellatus; there is no dark line of green or blue down the middle of each segment, such as in A. cyaneum, and the flowers do not open so widely. In A. kansuense the membranous spathe, which covers the buds, drops off as the buds begin to develop. A. cyaneum, on the other hand, retains its spathe, and has much daintier foliage, its slender, rolled and needle-like leaves suggesting a tussock of Festuca ovina, while its flowering stems are shorter than those of A. kansiense. For growing in the sunk garden of choice alpines, A. cyaneum is the more suitable plant; on the rock garden it must always yield to A. kansuense, with its larger heads and brighter colour, winsome and precious as it is. Both of these Alliums seed freely, but separation and replanting of their small bulbs offers the readiest means of increase. It is best to buy them as established plants in pots, as these may be put in at any time.

A. kansuense is figured in the *Botanical Magazine*, t. 7,290, not t. 6,451, as Mr. Edwards states in his article on A. Beesianum (*Gardeners' Chronicle*, April 13, 1929). That plate shows A. karataviense! *W. T. Stearn, Cambridge.*

TREES AND SHRUBS.

AZARA GILLIESII.

THE better known species of Azara—A. dentata and A. microphylla—are justly popular shrubs or small trees, but A. Gilliesii is assuredly deserving of greater prominence than it receives. It is not, perhaps, quite so hardy as its congeners, although A. dentata sometimes resents severe weather, and will appreciate the protection afforded by a wall, where the reddish-tinted branches and somewhat Holly-like leaves will prove an attraction. The yellow flowers are produced in winter or early spring, the axillary panicles being densely crowded with the small blossoms; the ovate, coarsely-toothed leaves of this evergreen subject are very smooth and are coloured a cheerful green.

This interesting shrub grows well in good loamy soil, and considering that it was introduced from Chili so long ago as 1859, it is surprising that it is not found more frequently in gardens; A. Gilliesii is figured in the *Bot. Mag.*, t. 5,178. *Ralph E. Arnold.*

CASSINIA VAUVILLIERSII.

THIS species of Cassinia, although not rare, is much less grown than the allied C. fulvida, with its golden, Heath-like foliage, which is so pretty in winter. C. Vauvilliersii, on the other hand, has silvery foliage, which is also exceedingly attractive in winter. In addition to the usual form, which is inclined to droop over, there is a variety named C. V. var. erecta of erect habit of growth. I am writing this note on C. Vauvilliersii in view of its hardiness here, it having survived here (Dumfriesshire) during the past two seasons against a south-west wall without protection. *A.*

HARDY FLOWER BORDER.

OTHONNOPSIS CHEIRIFOLIA.

SOME works of reference class Othonnopsis cheirifolia, the Barbery Ragwort, as a "greenhouse sub-shrub." In reality, however, it may be more correctly called a hardy plant, as it is rarely that it suffers in winter, even in a cold district, if in a dry position. It has been known in British gardens many years, as it was introduced in 1752. It has long been called Othonna cheirifolia, but has now been recognised as being the representative or possibly sole member of the genus Othonnopsis, signifying "like an Othonna." It was figured in the *Botanical Register*, t. 266. It is a member of the Natural Order Compositae.

O. cheirifolia owes its attractions mainly to its foliage, which is flat, broad, and of a glaucous appearance. It more resembles in respect to its foliage a Sedum than anything else in the way of outdoor plants. The flowers, which are bright yellow, are disappointing when seen on a small plant. They are more like a small-flowered single African Marigold than any other well-known flower which the writer can recall. The whole plant is about a foot high when in flower. It is best suited to the large rock garden but may also be employed in the front of an herbaceous border. It ought to have a very dry, well-drained soil and a sunny position. In a mass it presents a much better appearance than when grown as a single plant, and last summer the writer saw a big group in full flower in an extensive rock garden, which gave him a better idea of the worth of the plant than he obtained from having grown a few plants for a number of years. It was quite a satisfactory plant for the good position it occupied, and covered a space of about three feet each way. It was quite hardy there, and the writer has grown it in a fairly exposed position for a number of years, and it was only slightly injured in a specially hard winter. It is easily increased by cuttings and seeds, if the latter can be obtained. It flowers from May onwards, but, as already suggested, its principal value is because of its foliage, which is quite attractive all the year round. *S. A.*

ROSE GARDEN.

ROSE WICHURAIANA.

I HAVE read with pleasure the note by Mr. A. Osborn, in "Notes from Kew" (p. 129) upon Rosa Wichuraiana, and its value as a trailer over banks and rockwork. It is strange that the typical R. Wichuraiana is so rarely seen, even in gardens where the Rose species are largely cultivated. It deserves all that has been written in its favour by Mr. Osborn, and one can only add that it looks very attractive over slender arches. I once had it growing over such an arch, and it was highly pleasing, with its glossy leaves and good, single, white, fragrant flowers. After removing from this garden, when it was left, I resolved to plant the type in rather greater numbers, and to grow it over a trellis. With this in view, I purchased a dozen plants, but all were inferior to the one I had before. They seemed to be seedlings, and varied considerably in freedom of growth, glossiness of foliage and in size and form of the flowers. Hence, I think, it would be advisable for any one procuring the typical R. Wichuraiana to see the plants in flower and to select only good forms. *S. Arnott.*

FLOWER GARDEN.

GAZANIAS.

THIS strictly South African genus has revelled in our hot dry summer. Fig. 79 (p. 159) shows a hot dry border in St. James's Park containing about one thousand plants. While the major portion consists of the well-known G. rigens (syn. splendens), there is a sprinkling of the more recent introductions from South Africa, including the wonderful G. Pavonia, with its almost scarlet flowers and pinnate leaves, and also white and yellow self-coloured varieties.

Thanks to the renewed interest in South African plants there are now in cultivation many varieties and species of Gazanias, and although in limited quantities at the moment, it will be but a short time before they make their bow to the public, and it may confidently be expected that this one-time favourite is about to enjoy another spell of popularity.

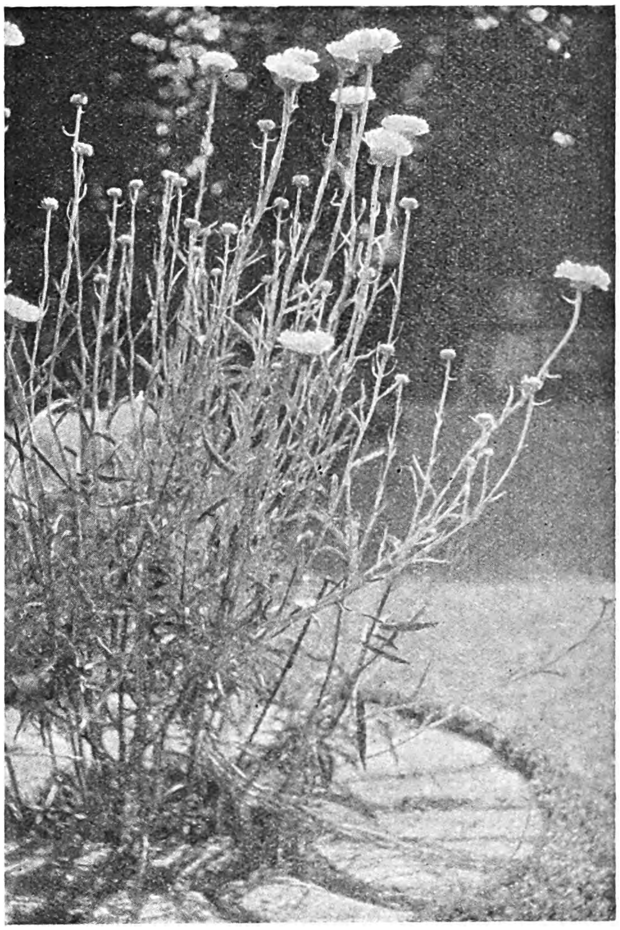

FIG. 81.—GRINDELIA SPECIOSA.
(see p. 165.)

The number of varieties now in cultivation is far more numerous than in pre-war days, when it was possible to secure several varieties raised on the continent. These seem to have been lost, but the best of them could not compare with what South Africa has now provided. The newcomers are endless in their shades of colour, markings and size, and have great diversity of foliage.

The identification of Gazania species is by no means easy, and the layman, even with both the French and the English Monographs before him, would have great difficulty in deciding which are hybrids and which are species.

No doubt it will be found that the species cross readily in their native habitat. Gazania seeds may be purchased from South Africa and possibly some British seedsmen. They are easy to raise and whether sown in spring or autumn, will give plants that flower within the year from seed-sowing. They are fascinating subjects to grow from seeds, and one day that much discussed purple-flowered species may be hoped for. *T. Hay, Hyde Park.*

INDOOR PLANTS.

COMBRETUM PURPUREUM.

This handsome evergreen climber, of moderate growth, is splendidly adapted for covering the pillars or the rafters of a warm house; it is most effective in the latter position, as then the purplish-crimson, almost scarlet, blossoms are seen to the best advantage. The flowers are produced in July, in large racemes, and present a brilliant spectacle; the plant thrives in peat, and is easily propagated from side-shoots obtained with a heel and inserted in sand, or very sandy soil, in a propagating case over bottom heat. The minimum summer temperature should range from 60° to 65° F. and the minimum winter temperature from 50° to 55° F.

A native of tropical America, Combretum purpureum will enjoy a humid atmosphere and sufficient shade to prevent scorching. It should be more widely grown, for it is a plant of striking beauty and considerable charm; its wreath-like sprays are invaluable for high-class decorative work. *Ralph E. Arnold.*

PHYSOSTELMA WALLICHII.

This beautiful, although rather peculiar, flowering stove climber is the only one of a genus of two species in cultivation. P. Wallichii is sometimes known under the name P. campanulatum; a native of the Malayan Archipelago, it was introduced from Singapore in 1845.

The waxy, cream-coloured flowers, tinged with purple, are broadly campanulate, and are borne, numbering a dozen or more, in a pendulous, umbelliform cyme. The individual blooms are between three-quarters-of-an-inch and an inch in diameter, and smell faintly of Lemon, reminding one of Lippia and Eucalyptus citriodora. The calyx is small and insignificant and finely parted.

The cultivation of this beautiful plant presents no great difficulty. It prefers a well-drained, peaty soil, and will thrive best trained against a wall, from whence it will derive additional moisture. It produces an abundance of blooms, too, when grown on peat pillars. These are made by procuring a large pot, crocked in the usual way. A stout, Oak post, three or four feet long, is firmly fixed upright in the centre of the pot by means of ramming peat tightly round about it. Peat is fixed around this post to the top and flush with the outside edge of the plant-pot. Some support is necessary to hold the medium together; this is given by putting a piece of good, close-mesh wire-netting round the outside of the pillar, It may be found best to fix this support first and ram the peat in afterwards. The young plants are placed in and trained around the pillar. It is advisable to make the top saucer-shaped to facilitate watering.

P. Wallichii belongs to the Natural Order Asclepiadeae. *F. H. Wright, Cambridge Botanic Garden.*

TRACHYMENE COERULEA.

Nicholson, in his *Dictionary of Gardening,* does not refer to Trachymene (Didiscus) coerulea in very complimentary terms, and yet it is an uncommon and highly decorative subject when grown in pots for a summer display in the cool greenhouse. It is a half-hardy annual, and when grown for cool greenhouse decoration the seeds should be sown in mild heat in early spring. The large, flat seeds should be spaced about half-an-inch apart to allow the seedlings room to develop before pricking them off into three-inch pots. It is a thin-growing plant and from three to five seedlings should be placed in each receptacle. The young plants should be kept growing in a warm greenhouse and potted on into five-inch pots, and later into the flowering pots, six or seven inches in diameter.

Trachymene coerulea starts to flower when about eighteen inches high, and continuing growing and flowering, eventually attains a height of over three feet. The individual, five petalled flowers, each a quarter-of-an-inch in diameter and pale blue in colour, are borne in umbels of fifty or more blooms. The umbel opens flat, but by the downward lengthening of the outer rows of flowers is, when fully expanded, globular in outline. After fertilisation the usually sterile, outer flowers assume a perpendicular position, closing over the mass of seed-bearing, inner flowers. *Jonathan Fiona.*

FLORISTS' FLOWERS.

BORDER CARNATIONS.

If an annual show of any flower only served to define clearly the superiority of certain varieties for show purposes, both as regards pot and border culture, it would achieve its object, for there is always a class of amateur growers who prefer to wait and see what is likely to prove a sound investment, mistrusting their own ability to make a discriminating choice, although this takes away a great deal of the pleasure one obtains in having a novelty which has to justify its reputation. Certainly there is always the chance that new varieties will not fulfil their early promise, some very soon degenerating or showing traits not at first apparent, reversion to an inferior type sometimes happening, but if the majority of gardeners reasoned in this manner it would be a very small band of the elect who tried out the many lovely things put on the market, season after season.

Two varieties especially may be mentioned as having been much decried, and yet are probably now more universally grown than most—Mary Murray and Mrs. E. Charrington—the former being dubbed coarse and deficient in layers in its first seasons, while it seemed as if the latter was one great mistake, but time has proved it to be the most acclaimed white-ground Fancy, which, when grown as shown by Miss Shiffner at Vincent Square, in July, no one could dispute. I agree that Mary Murray may be very chary as regards layers, but I believe this to be only a matter of soil and position. I have grown the variety in many aspects, in soil on the light side, but it requires, as all classes of Carnations do, except the yellow-ground Fancies and Picotees—which will do well in much lighter soil than the others—a fairly heavy medium and a south-west aspect, which seems quite as necessary as the soil, and is at all times the ideal position for these flowers. Given these, the beautiful yellow Self will be at its best, and this is very good, including a stem which is second to none, and ten to a dozen strong shoots where the stock has been grown from healthy plants. This, again, raises the question as to how far it is safe, or even permissible, to layer from plants which have had to be heavily fertilised for show purposes.

To assume that because a variety gives large blooms after being treated in this way, especially if chemicals are used, that the shoots, when layered, will not show the weakness which is, in the first instance, caused by drugs administered to give a fictitious strength, is to shut one's eyes to what will speedily prove a very obvious fact, for when propagation is thus systematically effected from show stock, the result will be that the shoots become so poor and weak that in many instances, if one requires to perpetuate the variety, the layers have to be grown on for a year, nipping out the flowering stems, before they are of any use whatever. Only by having sufficient stock to enable one to keep for that purpose alone the plants intended for the showboard, layering from the remainder which have been fertilised sparingly in the ordinary manner, can healthy plants be assured, and by this means most of the losses caused by stem-rot, would, I am confident, be eliminated. Those who grow from stock which they know has never been used for exhibition purposes are rarely troubled by this disease, and if one or two plants do occasionally succumb, it is generally traceable to an entirely different cause, soil pests being liable to breed, however careful one may be.

Weakness and delicacy of constitution are not natural to the hardy border Carnation, and the very fact that the ravages caused by stem-rot and other diseases (one of which is a gradual hardening of the stems, with sapless conditions, which I am trying to elucidate, and which seems to puzzle all who have observed it) have become much more serious, especially in certain districts, point to the opinion that the cause must, in the first instance, be induced by Carnationists themselves, for the pioneers who were so careful to note and examine any defect do not make any particular reference to what is fast becoming a menace to the border Carnation.

On light soil, I have found that sand is quite unnecessary where old mortar-rubble, which contains sand in abundance, is used freely, also an occasional dressing of pulverised limestone is preferable to lime, which renders the ground too friable, and where wood-ash is used, which on light soil I deprecate, an excess of potash, in addition to that in the soil already freed by the lime, may very easily result in an attack of rust. Carnations will grow in any good soil, but will thrive all the better if a knowledge of what to avoid, and the requirements of different soils, are kept in view.

To return to the flowers themselves, two other varieties which unfailingly appear on the show-board are Highland Mary and Bookham Scarlet. That the latter is a very excellent Carnation is granted, and there are now about five more scarlet Selfs which may be grown with advantage—Red Gauntlett, E. Lyall Sweete, Flambeau, Fusilier and Regina, the last especially good in the border. Flambeau and Fusilier are novelties. The former, of a brighter colour than most, will become popular on that account, if it is a strong grower in the open.

A new French lavender-grey Self, Misty Morn, should, according to its reputation, supply a long-felt want in this shade, being a variety with stiff stems, good shape and habit of growth, and suitable for exhibition from pot or border—a rare combination where this colour is concerned. It certainly is a charming thing, and together with Kate Seton, a white-ground Fancy, heavily marked with rose-pink, gained a First Class Certificate at Vincent Square in July. The latter promises to be a great success when put into commerce.

Other quite new varieties are Fancy Free, a very dainty flower of Fairy Clove colouring, but with rather thin petals; Coldstreamer, buff-ground Fancy, heavily marked and suffused with scarlet, which recalls other varieties of very similar colouring; Homer, a rose-madder Self, with exceptionally stiff stems; and a Fancy, Prince John, in colour a cross between Ebor and Verdun, but very unevenly marked, some of the petals being entirely of one colour, placed here and there in the bloom. It is a large flower, and, if a strong grower, would add gaiety to the border.

Three Fancies shown as seedlings last year, and which I noted in a former article, are being sent out this autumn, *i.e.,* Aspasia and Luki, yellow-grounds; and Egeria, white-ground with deep crimson edging. The first-named is a seedling from Highland Mary, and somewhat of that colouring, with denser markings; Luki is of a somewhat unique deep yellow with maroon and crimson markings, the nearest to it in these shades being Allan-a-Dale, but it is a curious fact that if an outstanding flower is raised there will, very shortly, be several of similar colouring, although nothing approaching it had previously been seen; Kelso is a case in point.

A yellow Self named Undine, another novelty for this autumn, is stated to have a Clove scent—surely the only one in existence—but it looks strong, if somewhat cupped. As these are all still to be proved, amateurs must take their choice.

Many varieties sent out during the last few seasons have justified themselves by growing freely and strongly, without any protection, in the open border; four white-ground Fancies which are very similarly marked, but in different colours, are Bookham Beau, Fred Archer, Flora McIvor and Alice Forbes; Monica, Yenton, May Morning and Evelyn White are also of exhibition form. So far as their habit is concerned, there is nothing to choose between them, and I can recommend all, the first-named having a flat type of bloom like St. Clair Amos, but it is most floriferous and lasts well.

So far as new yellow-ground Fancies are concerned, there is none better than Florence Grisby, a beautiful, strong, lasting variety, while Idwen will please amateurs who want the Kelso colouring in the border. Plant this facing south-west in firm loam. Another of the type, and a giant in growth, is King's Jester. I do not think either Highland Mary or Viceroy can be bettered, but to these I would add J. J. Keen, a perfect flower, Kathee Moore and the newer varieties Radio—worth a trial as being decidedly noticeable as to colouring—Vega, deep yellow, heavily marked with brightest rose, a very fine flower, and Vesta, heavily marked with maroon.

In Selfs, the purple Majestic, certificated last season, a strong grower of excellent shape and size, and of outstanding colour, and the dark lavender Jim Dalton, will prove good for any purpose, the border suiting both varieties to perfection. Others of equal merit are St. Joan, "Ashes of Roses" shade; Ibis, an older variety, lovely salmon-scarlet; Bookham Pink, a really good rose-pink, of exhibition form; and Teviotdale, a distinct and telling shade of ruby-rose, strong and floriferous. St. Joan is rather inclined to be cupped, and the Dianthus blotch of deep rose is very marked at the base of the petals in some of the blooms. I do not recall any other variety which has this trait, but it is of perfect shape, and so strong and unique in colouring that it is a universal favourite.

The Cloves are enriched by Breckenborough Hall, the seedling from Mrs. A. Brotherston, not only on account of perfume, for it is of strong, compact growth, and its colour, a charming salmon and pale pink, ticked with red, marks it out very distinctly; and Edenside Clove, a heavily-marked white-ground in the style of Ravenswood; this latter, exhibited at Vincent Square, is not yet in commerce.

Other varieties and points of interest to Carnation lovers must be included in a future paper. *J. B. Wells.*]

PLANTS NEW OR NOTEWORTHY.

PEREZIA RECURVATA.

PEREZIA recurvata, Loss., is a desirable dwarf, sub-shrubby perennial. It is a member of the great Natural Order Compositae, and hails from the far distant Falkland Islands, where it grows in peaty and sandy soil, usually among rocks on, or not far distant from, the coast line. It forms a compact, densely leafy tuft of evergreen, grey-green foliage, usually well under a foot in height, frequently only three or four inches in exposed places, in nearly pure sea-sand.

The branched stem (Fig. 80) is clothed with tough, strap-shaped, recurved leaves, usually not more than an inch long, with sharply-toothed margins; their tips are rather pointed, or blunt, and the base is dilated into a sheath which clasps the stem. The blossoms are terminal, on the ends of slender, woody stalks one inch or two inches long, clothed with a few reduced leaves just under the involucre, which is composed of about three rows of overlapping bracts, furnished on their edges with stiff, spiny hairs. The florets are sometimes lilac, or white, but are usually of a beautiful deep rich blue colour and are very fragrant.

In its native habitat, where it is known as "Lavender," the blossoms of Perezia recurvata are produced during the months of December and January. As the climate of the Falkland Islands resembles that of western Britain, the plant should prove quite hardy in such localities, in sandy peat, in an open spot in the rock garden, where it should prove attractive even when out of flower by reason of its uncommon-looking greyish foliage. *A. W. D.*

CALCEOLARIA VALDIVIANA, COMBER, No. 790.

THIS herbaceous Calceolaria (Fig. 82), raised from seeds collected by Mr. H. Comber in the Andes, has proved a plant of considerable garden merit. The purple-coloured, branched flower stems, of which there are a dozen or more to each plant, rise to a height of two feet six inches, and bear beautiful flat, clear-yellow flowers, of good lasting quality. The plant seems to be quite hardy, having withstood last winter without injury. Other Calceolarias from the Andes are doing equally well and self-sown seedlings are growing freely.

GRINDELIA SPECIOSA, COMBER, No. 33.

THE flowers of this plant are four inches in diameter and are borne singly at the end of a stiff stalk three feet in length. The foliage is sparce. The flower buds are covered with a white, sticky gum for some weeks before they open. (Fig. 81.) *K. McDouall, Logan.*

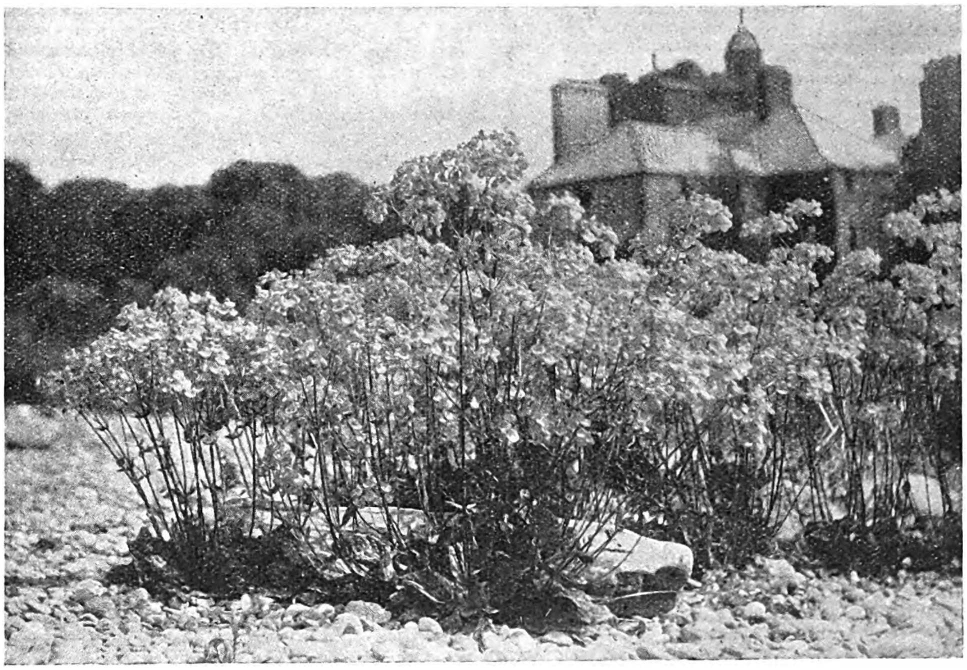

FIG. 82.—CALCEOLARIA VALDIVIANA.

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

PLANTS of one genus differ very widely from those of another genus in the degree by which they reveal or disguise kinship. It requires, for instance, close scrutiny with a lens to show that Olearia Lyallii, with its leathery leaves eight inches long, belongs to the same genus as O. virgata, which bears small, linear leaves set in fascicles along the slender branchlets. On the other hand, no species of St. John's Wort can deceive the most superficial observer about its genus, although centuries of a marshy environment have imposed a feeble camouflage on our native Hypericum elodes. Most, if not all, of the shrubby species make their chief display in August, and very fine it is. Among the patulum group, I incline to give the palm to H. patulum var. Forrestii, which, as it is not included in the Kew *Hand List*, may, like H. patulum var. Henryi, be no more than a geographical form of H. patulum.

Both H. patulum var. Forrestii and H. patulum var. Henryi are perfectly hardy, whereas H. patulum type is frost tender, and need not be attempted except in very mild districts, unless against a wall. Moreover, the two varieties concentrate their splendour, covering their shapely mass with golden blossoms during a full fortnight, while H. patulum is never so effective, flowering less profusely, but continuing to do so after the others are passed, until stopped by frost. The gold of H. Hookerianum is quite as pure as that of others in the group, but it has not the compact habit which contributes such decorative effect to H. p. var. Forrestii and H. p. var. Henryi. It inclines to be leggy and flowers later than they. I well remember my first introduction to this species. Full fifty years ago, when strolling through that tangled treasure field of good things—Messrs. Cunningham and Fraser's nursery, in Edinburgh (now, alas! no more), I came upon a single plant among some Gooseberry bushes. I secured it and have never since been without its progeny.

I am grateful to the kind friend who last year sent me a plant of Rudbeckia flava, which, I suppose, is a new species, as it is not entered in the Kew *Hand List*. It bears a general resemblance to the North American R. speciosa; but the yellow rays are flatter and rather broader than in that species. Moreover, it begins to flower in June, a full month earlier than R. speciosa, and is still putting forth fresh flowers—in mid-August.

We ransack mountain and plain all over the world for furnishing our borders, and no doubt secure a rich reward; but sometimes it is brought home to one that some of our native herbs, if relieved from the struggle for existence to which they are exposed in their natural environment, prove lusty rivals in beauty to many a high-priced exotic. My eye was attracted lately by a mass of blue in a border of Roses, where no such colour had been assigned a place. It proved, on near approach, to be a cluster of Bluebells—not the English, but the Scottish Bluebell (Campanula rotundifolia), which, self-sown from the fields, had grown into a dense clump fully eighteen inches high, and thickly hung with its pretty flowers. In the wild it would have had to compete with grass and other herbage, and could never have borne the profusion of flowers which attracted me.

The Indian Strawberry—Fragaria indica—is one of Nature's most successful practical jokes. Its bright yellow flowers are succeeded by Strawberries of the richest crimson, but totally devoid of succulence. Rambling as it does here on a retaining wall, goodness knows how many children—nay, adults also—have been deceived and disappointed by what have all the semblance of refreshing fruits. *Herbert Maxwell, Monreith.*

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CURIOUS OLD BELIEFS ABOUT MEDICINAL HERBS.

FEW things are more pleasant on a warm, summer day than to lounge in an old-world garden, enjoying the blaze of colour and the fragrance of the flowers, and so let one's mind wander idly in the realm of fantasy which our forefathers built up around plants.

Hardly a flower in the garden but has some curious legend or belief attached to it, evidence of the important part plants played in the life of primitive men.

From plants the first medicines were obtained —no wonder the ancients endowed them with magical properties and invented marvellous legends to account for these.

One of the most curious beliefs about the medicinal virtues of herbs is that known as the Doctrine of Signatures. No one knows who invented this idea. It seems, indeed, gradually to have been built up. Way back in the thirteenth century, Roger Bacon, in a book dealing with the Cure of Old Age and the Preservation of Youth, wrote that " Wheresoever God hath placed an admirable virtue, he hath added a certain similitude, that every man, who is of a clear and vivacious wit and understanding, may conceive its operation." There are, however, many earlier intimations of the same idea, which was vigorously championed in the sixteenth century by the great Paracelsus and gained almost universal acceptance.

By their form or by some peculiar mark in them, plants, it was thought, revealed their uses to mankind. Sometimes it was said that the mark was impressed upon the plant by a star, for in those days everyone believed in astrology. The stars were the means Divinity used to shape our ends, and the herbs of the field bore their signatures.

In some cases, no doubt, the " signature " was discovered after the herb had been found to be of real medicinal value. But not infrequently, quite useless herbs were prescribed because of some peculiar mark they bore. Thus, both Wood Sorrel (Oxalis Acetosella) and Spotted Medick (Medicago maculata, syn. M. arabica) were used medicinally for heart diseases, the first because of its heart-shaped leaves, the second for the additional reason that its leaflets bear, in the language of an old herbalist, " the perfect icon of a heart in its proper colour."

Many other examples of this quaint old belief could be given, and, in quite a number of cases, plant names bear witness how widespread it was. Thus Euphrasia officinalis, a little plant with a dark-coloured, pupil-like spot on its corolla, was used for improving the sight, and is still called Eyebright. Lungwort (Pulmonaria officinalis)—a favourite plant in old-fashioned gardens—is so named because its spotted leaves were thought to resemble lungs and to indicate its utility in pulmonary complaints. The Lesser Celandine (Ranunculus Ficaria) is still known as Pilewort in some parts of the country, because the curious character of its roots stamped it as a cure for hemorrhoids. Aristolochia Clematitis gets its name of Birthwort from the peculiar shape of its corolla, which, it was thought, indicated the usefulness of the plant in maternity cases. And a whole family of plants derives its name of Scrophulariaceae from the fact that the roots of the Figwort, Scrophularia nodosa, have gland-like tubers attached to them, which indicated that the plant was to be used in treating scrofulous glands of the neck.

A whole book could be written about Mandrake (Atropa Mandragora), so many are the legends attached to this plant, whose forked roots somewhat resemble a little man in shape. In Old Testament times, Hebrew women used it as a cure for sterility. A belief in the magical powers of Mandrake can even be found to-day in some villages in England—roots of the White Bryony (Bryonia dioica), trimmed to shape, usually masquerading as the real article.

The Doctrine of Signatures has been called " the most absurd and preposterous hypothesis that has disgraced the annals of medicine." This is too harsh a criticism of a poetic fancy, which, if it contained little or no truth, at any rate caused men to examine plants more closely and to study their medicinal uses. We may still amuse ourselves in our gardens to-day by examining our plants for " signatures " and letting our imaginations wander for a while in the pleasant region of fantasy. *H. S. Redgrove.*

A FEW NEW ZEALAND OURISIAS.

THE genus Ourisia, which is distinctly of sub-antarctic origin, extends from Andine South America to Tasmania, showing a partiality for mountains wherever it is found. There are some twenty-five species and the genus is well represented in New Zealand, where ten species—all endemic—are found in habitats ranging from sea-level to 6,000 feet. Many of these desirable little gems have not yet come under the care of horticulturists, although they are comparatively easy to establish and all are of pleasing habit, extending into colonies of varying heights and sizes by means of creeping rhizomes. The majority are members of the plant communities which hail from the alpine meadows and, therefore, they should be quite hardy and prove themselves to be popular additions to the rock gardens of the British Isles.

There are two distinct types of Ourisia, but that need not worry anyone unfamiliar with the New Zealand species, because the types may be readily identified by their habits. One group, of which O. macrocarpa is a typical example, is erect in habit, sometimes decumbent at the base, with more or less tender, broad green leaves, usually radical. The blossoms are borne after the fashion of the "Candelabra" Primulas, which is probably the reason why these Ourisias are sometimes termed the " Native Primroses." Members of this big-leaved group are usually found in shady places by the edge of the forest, or in the scrubland immediately adjoining, because, seemingly, they prefer the cool, moist places where forest and moorland meet, where they can get all the light they require but are suitably placed to receive the benefit of the cool shadows of the forest to shield them from the hot sunshine.

The leaves of the various species decrease in size and become more stiff and leathery the farther they emerge from the forest or the higher the altitude to which they climb.

Those belonging to the second group are of more robust constitution and prefer to make their home in the wide, open spaces of the alpine meadow lands, instead of leading the comparatively sheltered life by the edge of the forest, or in the straggling shrubland just above—which often resembles a miniature forest. They refuse to be hemmed in by the tangled life of the forest or scrubland, and so they migrate to the open moors; not content with this some of them climb upwards until they reach the limit of vegetation and there they, perforce, settle down to become pioneers in the colonising of glacial moraines and other uninviting-looking places.

Here they flourish with their bright little faces revelling in the sunlight while their toes and ankles are bathed in the ever-moving moisture which is percolating down the mountain side, beginning its long journey to the ocean. These pioneers, which sometimes reach 6,000 feet altitude, have a very different habitat from their kinsfolk of the lower levels, and, therefore, they tend to become carpet-forming plants of low, creeping, usually closely-matted habit. This growth-form seems to be most suited for enabling them to shelter as best they may from the severe climatic conditions of such a site.

Ourisia macrocarpa (Fig. 83) is one of the very few New Zealand plants which are suitable for cultivation in the herbaceous border. It is the hardiest species of the erect-growing group and when it reaches full development it is a remarkably fine plant, with a quiet charm which is all its own. The stout stems are produced from short, creeping rhizomes and under favourable conditions they rise to as much as two feet in height. The leaves are chiefly radical, three to five inches long, broadly-oblong and more or less sub-cordate at the base. The leaf is dark green above and paler beneath, with dark purple veins and petioles which stand out in bold relief. The dainty, white, Primula-like flowers are borne in from four to eight super-imposed whorls on stems some twenty inches high. The whole plant is glabrous or nearly so, characters which, along with the large sepals and purple veins and petioles, are the chief marks of distinction between this and the following species.

O. macrophylla is rather a tender plant, although closely allied to O. macrocarpa. It belongs to the same group and in its full glory it is really a highly ornamental subject. It may be readily distinguished from specimens of O. macrocarpa by its smaller size, less robust habit, the comparatively large, tender green leaves which have green veins and petioles, and the fact that it is generally provided with a covering of soft, spreading hairs.

These two species have a range of from sea-level to 3,500 feet, and the only means of linkage between the higher and lower levels is the banks of rivers and streams. The Ourisias are all typically mountain plants, and probably the explanation of a few having been found near sea-level is that these have been washed down from higher altitudes by floods and afterwards been left stranded, some of them being successful in finding rootholds and thus becoming established. As a rule, the species are much more abundant at the higher limit of their distribution than at the lower.

O. sessilifolia is an attractive little plant of rather striking habit. The lower portion of the stem is of the creeping and rooting type with the partially distichous leaves lying flat and pressed closely to the surface of the soil. The ovate-spathulate leaves are all radical, some two inches long, densely hairy, and forming very shapely rosettes of a beautiful olive-green. The tiny flower stem, which at most barely reaches six inches in height, bears from four to eight blossoms which are of exquisite beauty. The individual flowers are quite small, three-quarters-of-an-inch in diameter, white at the margin and shading into a fine deep violet-purple at the throat. This charming little plant is fairly abundant in the southern Alps, where it inhabits moist, shady places—never in full sunlight—

at altitudes ranging from 3,000 to 5,000 feet. This little fellow likes to perch in shady places on rocks, etc., and during the months of January and February the plant-hunter who is fortunate enough to come across it must be *blasé* indeed if he is not thrilled with his find. Unfortunately, O. sessilifolia seems to be rather impatient of civilisation, and seems to prefer the seemingly uncongenial surroundings of its natural habitat to a shady nook in the rock garden.

This group of Ourisias is distinctly shade-loving, and therefore must have at least partial shade when cultivated in the garden. Like the majority of plants from high altitudes, they have developed a remarkable thirst, which can only be dissipated by fresh water. If they are planted in an open soil, with good drainage for surplus water, and are not allowed to become too dry, they are, mostly, comparatively easy of cultivation.

Of the mat-forming group, O. caespitosa (Fig. 84) is probably the best-known species. It forms broad, dense carpets of small, shining, bright green leaves which are almost one-third-of-an-inch long, fleshy and glabrous. The delicate, white flowers, which shade away to a fine golden-yellow at the throat, are borne on frail little stems which are giants if they reach four inches in height. In early spring each stalk will be laden with a beautiful burden of blossoms; sometimes so many as five flowers succeed in crowding themselves on these frail-looking stems. In their native habitat, between 3,000 and 6,000 feet, on the southern Alps, they are often very abundant, and within a short time after the winter snows have receded they are out enjoying the sunshine. Owing to their extensive altitudinal range they may be found in flower from the end of November until the end of February. If one goes in search of this charming little wilding one sees it ripening its seeds at the lower levels, while as one ascends the mountain the brownish capsules become greener and greener until ultimately one reaches within a short distance of the snows, and where the snow lay a week or two ago a white carpet of the delicate little blossoms of O. caespitosa will be found.

The closely related O. modesta, to all outward appearances seems to be a tiny edition of O. caespitosa. It is much smaller in all its parts and thrives under the same conditions as the foregoing species. Of very local distribution, it is found near sea-level on Stewart Island, which lies some twenty-five miles south of New Zealand.

O. glandulosa s a quaint little species which may be readily identified by the long-jointed hairs on the leaf margins, which give the plant quite a hoary appearance. Being a member of the patch-forming fraternity, it is in several respects somewhat close to O. caespitosa, being very similar in habit and having the same altitudinal range, although its distribution is much more localised. Although in nature it is an inhabitant of peaty soils, it will flourish when cultivated in ordinary garden soil.

The cultivation of the genus Ourisia falls under two heads. Those species which normally inhabit more or less shady places should not be planted where they will be subjected to the full force of the sun's rays, although the majority of the species are capable of withstanding, and may even enjoy, a few hours' sunlight. Probably most of the misconceptions which have arisen in the cultivation of these beautiful plants have been due to imperfect understanding of their needs.

It is of great assistance in the cultivation of garden plants if the cultivator can go back to nature and observe how and where the plant chooses to grow when beyond the influence of man's interfering hand. That is not always possible, and the next best thing is to keep on moving plants which do not seem to be happy in their surroundings. If unhealthy plants, and those which produce too much growth and refuse to produce flowers, are periodically moved to different environments, many which are ordinarily classed as "very mediocre" will, when placed in conditions similar to their normal surroundings, become fine specimens of their kind and may sometimes develop into quite beautiful subjects.

The mat-forming Ourisias inhabit bleak, upland moors, where they have to battle through all sorts of adverse conditions, and, therefore, they develop a low and compact habit to help them counteract the effect of intense isolation and biting winds; during the winter months they can rest safely covered from all harm by frost, by a heavy blanket of snow. They will thrive and even flourish in the rock garden when exposed to wind and sunshine, but they must have plenty of moisture because they hang their heads at the mere suggestion of drought.

All the New Zealand Ourisias may be propagated with remarkably little trouble. The plants lend themselves to division, which is best done in autumn, while the seeds usually germinate freely. They are not plants which are difficult of cultivation when one knows which are shade-lovers and which are not, and, therefore, they should become popular plants for the alpine garden. Although Hooker knew most of the above-mentioned species in 1864, only two of them seem to have reached the gardens of Great Britain, and even they seem to be far too rarely met with. *A. W. Anderson, Dunedin Botanic Garden, New Zealand.*

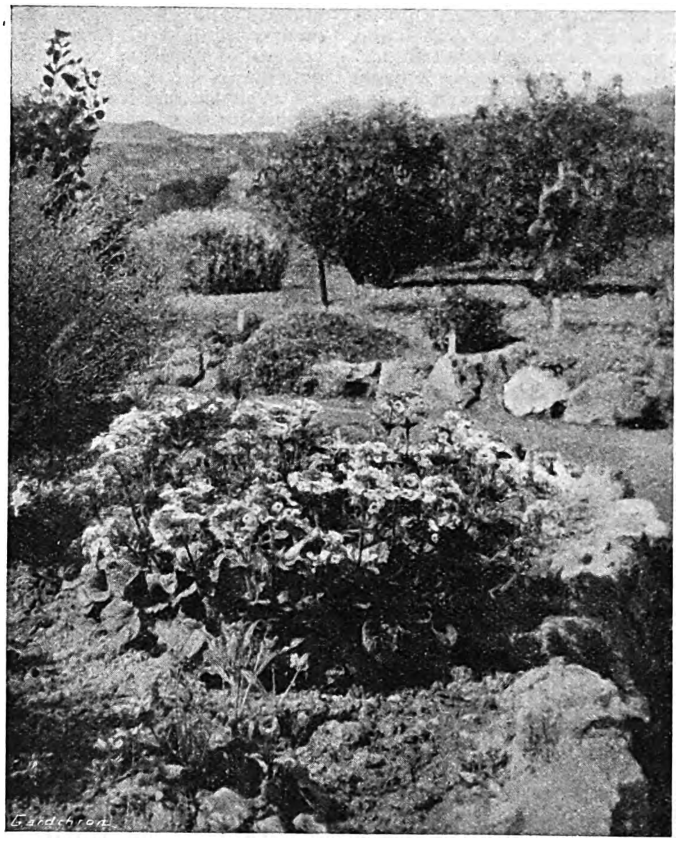

FIG. 83.—OURISIA MACROCARPA IN THE BOTANIC GARDEN, DUNEDIN.

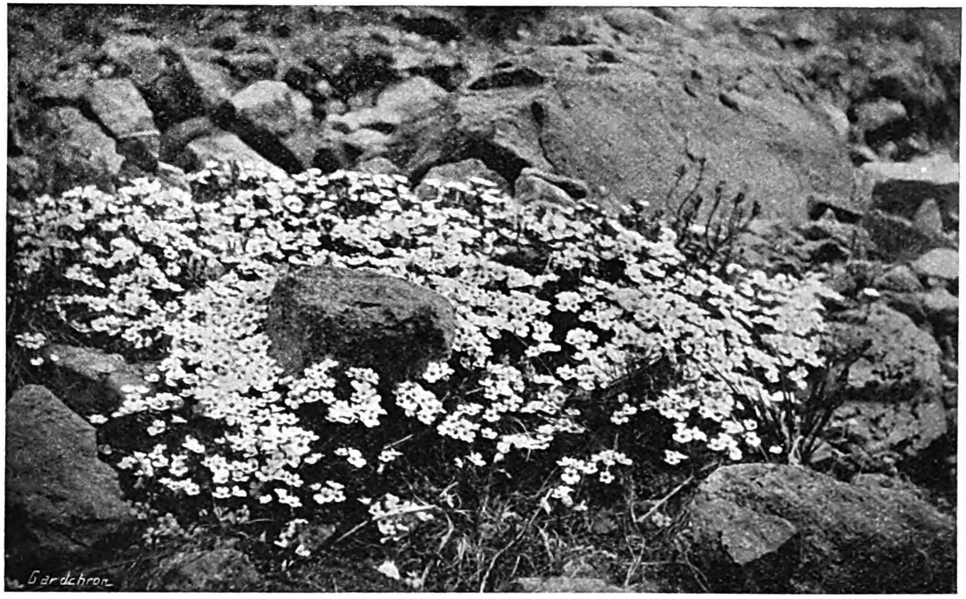

FIG. 84.—OURISIA CAESPITOSA IN ITS NATIVE HABITAT.
(Southern Alps, N.Z., 4,500 feet altitude.)

AN INTERNATIONAL GARDEN OF PEACE.*

When the members of the National Association of Gardeners decided to hold their 1929 Convention in Canada, they established a precedent, for never before had the Association held its Convention out of the United States. It took courage to do this, but progress is made by the application of courage and the establishing of precedents. This great international meeting is the result. It is, however, but the first result, for out of it will surely come progress to our beloved horticulture, and in the creation of friendly international relationships which will stand out as examples to the world for all time.

We are glad you came! We desire to work with you, to consummate International Plant Registration and the Patenting of Plants, but it is not of this I am authorised to speak this evening. Your worthy President, Mr. D. L. Mackintosh, has accorded me the great honour to introduce the project of an International Peace Garden. For many years I have wondered what could be done to help to maintain the goodwill which exists between our nations and, as one interested in horticulture, to bring about a better understanding and a closer co-operation between the horticultural organisations of both countries. Therefore, when at Greenwich, last October, I looked into your faces and partook of American hospitality, the feeling that we must be brought closer together was intensified. Could there be a more fitting medium to this end than an International Garden, a common meeting ground, and a great and beautiful symbol of peace and goodwill? Could any other memorial be so good as one full of life and beauty, or appeal more to the heart of mankind? How wonderfully educational would this garden be, and how helpful!

On returning to Canada, I thought what a mighty influence for good were the people who love flowers and trees and the beauty of God's great outdoors. How opposed are they to those who glorify war—hellish war, with all its horrors. They will have no dealings with these enemies of civilisation, rather their ideal is to build and uphold civilisation. Then the thought that we, the horticulturists of the United States and Canada, could show the man who speaks without love of his fellow man in his heart, that it is time for the madness to end. We will do it by example, and the example we intend to set with the permission of our Governments is to lay out a magnificent garden at a point on the International Line, a beautiful and living memorial to everlasting peace between our two nations, a thing of supreme beauty, and an inspiration to the hearts of all men; a reminder that the greatest ideal and aim that nations can have is love of their fellow men, and enduring peace on this earth. Such an example to the people of all the nations of the world will this memorial be!

The Garden of Eden is no more; God made it for man. Now man will honour God and make a garden and dedicate it to Him, and somewhere along the International Line will rise a second Eden, and the nations of the world will shed tears of joy. Every time we visit this garden, every time it is mentioned, we will be reminded of its purpose—goodwill between nations. We believe our Governments will help! We believe Great Britain and the whole British Empire will rejoice, and that will help to establish the garden, for it will be a memorial to more than a hundred years of peace between Britain and the United States. The whole world will help and rejoice.

The world is looking to North America for a vision, even although it be but the effort this Convention is putting forth. Its heart is aching for an expression of that goodwill which brings nations together, and is that for which we strive. In this meeting all nations are interested. The people will be glad that we, the horticulturists of two great nations, have arrived at a stage in our existence where we realise that although it is a big thing to bring about a national reform, it is a greater to bring about an international reform, which has for an object service to all mankind. It is such movements as these which break down the barriers of reserve and which largely offset the insidious and dangerous propaganda of those who delight not in cementing relations between nations, but in destroying, through the agency of bloody war, the economic and moral structures which our civilisation has raised.

Men who encourage war have no love for their fellow men. They are the scourge of civilisation and righteousness is foreign to them. They would tread over the dead bodies of men and the sorrows of women and children to attain their ends, and amid the ruins of the most beautiful things the ages have reared would chuckle at the monstrous thing they have wrought. Jealousy, prejudice and hatred dominate the lives of these men. Their way is that which tends to destroy the highest ideals of humanity. Thank God the majority think the other way, included among whom are the representatives of the greatest horticultural organisations on this Continent present to-night. The influence of your lives is the barrier against which hard feeling will beat itself and break as harmlessly as waves upon a rock-bound shore. It will be this influence which will help to establish the Garden of Everlasting Peace, wherein prejudice and hatred will soften and blossom, like the flowers, into love.

Thank God for your influence. You have lifted your eyes unto the hills, and have seen the wondrous beauty of the creation. You are a credit to our two great countries. You love the beauty of the universe and your neighbour as yourself. The things you work with and enjoy signify your love. Your love expresses your character. It stamps you as leaders in your communities, and as nation builders. The example of your lives may be likened to that of the lowly Nazarine who "went about doing good."

Wonderful memorials have been erected between our countries. We have the Peace Bridge between Buffalo and Fort Erie; the Ambassador Bridge between Windsor and Detroit, and other splendid projects are being considered. We, as horticulturists, desire, however, to establish an International Peace Garden, a great horticultural and botanical centre, and in which may be grown and tested all the newer originations, and which may become the international clearing station under an international committee, and the authority to recommend registration or otherwise to the Registration Bureaux of both countries.

Financing the Project.

How to finance this great project is a matter for the consideration of an International Committee, which, may it be suggested, could be organised during this Convention. We, in Canada, have thought that it would be better to state a small sum as a minimum, say 25c., so as to make it possible for practically every family in the United States and Canada to subscribe and to accept subscriptions of larger amounts from individuals and organisations inclined to give them. Thus it would really be the people's garden. A thing they help to establish they would revere. Every child in every school could contribute at least five cents to the endowment, and as the children of today will be the voters and legislators of tomorrow, the fact of having contributed to the Peace Garden would have a great influence for good in later life. They would never seek to destroy the thing they helped to create. In these and other ways an endowment of at least $5,000,000 could be raised, which, properly invested, would yield an annual revenue large enough for capital and maintenance charges.

We have approached several hundred Canadians and Americans, among them the heads of large industrial companies, and in all cases the movement has met with approval and promises of financial help. We have a considerable sum in view as a result, and which will be deposited as a nucleus of the endowment.

In my hand I hold a priceless document. It tells a story as deathless as that of the origin of the first garden. It tells that Canadians and Americans did, in the year 1929, in their love for each other, promise to subscribe to make possible the project. Their names, along with those of the millions yet to sign, will be printed in volumes and be handed down to the generations yet unborn, as the authentic historical record of the origin of the Garden of Peace.

The United States Ambassador to Canada, the Hon. William Phillips, the highest representative of the American Government; and the Governor-General of Canada, Lord Willingdon, the direct representative of the King and of Great Britain, have endorsed the project. The Prime Minister of Canada, the Hon. William Lyon Mackenzie-King, kindly sent a representative to this meeting. The Hon. George S. Henry, a Minister of the Ontario Government, is present. The Hon. John S. Martin, Minister of Agriculture of Ontario, and the Hon. William Motherwell, of the Dominion Government, are in accord with the project. What better endorsement is possible?

Mr. President, with your permission, I will read the letters of Mr. Phillips and Lord Willingdon.

Legation of the United States
of America, Ottawa, Canada.
July 18, 1929.

Henry J. Moore, Esquire,
Chairman, Canadian Committee,
National Association of Gardeners,
Box 61, Islington, Ontario.

Dear Mr. Moore,

I regret exceedingly that owing to my absence from Canada during the month of August, I cannot have the pleasure of attending the Convention of the National Association of Gardeners. Especially do I regret that I shall not be able to be with you on "International Night" when it seems possible that reference may be made to the proposed International Peace Garden to be situated somewhere along the border between Canada and the United States. Such a project appeals to me immensely, and I should like to identify myself wholeheartedly with it. I can think of no finer memorial to the lasting friendship of our two countries than a garden or park where the beauties of nature are revealed and augmented by the skill of Canadian and American horticulturists.

I wish to express to the great concourse of gardeners assembled my cordial regards and best wishes for the success of their Convention, and my fervent hope that their inspiring ideal will come to pass and be an historic shrine for pilgrims from both countries.

Sincerely yours,
(Sgd.) William Phillips.

La Citadelle,
Quebec.
July 19, 1929.

Any scheme which has for its purpose the promotion of peace, of friendship and co-operation between the people of our two nations will always have my cordial approval.

I therefore send my greetings to all members of the Convention of Canadian and American Horticulturists which is to meet in Toronto next month, and trust that the result of their discussions may bring about a further development of the charming idea of starting a Peace Garden somewhere on the boundary between our two countries.

(Sgd.) Willingdon.

To this garden all mankind will come, for all eyes will long to see its beauty. Every heart will yearn to visit it, and the question which will greet the homecomer of every nation will be:—"Did you see the International Peace Garden?" and the reply, "Yes, it is the greatest and most beautiful memorial ever conceived by friendly nations; beautiful because of the love of one nation for another, and because the things it contains all live and are God's most wonderful expression of His love for mankind. The greatest and most beautiful memorial because, in the garden, love has removed every barrier. It is truly a land without a line."

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* An address delivered by Mr. H. J. Moore at the Convention of the National Association of Gardeners of the United States, at Toronto, Canada, August 7.

Mr. H. J. Moore, an old Kewite, is Forester of Provincial Highways and Lecturer in Horticulture in the Province of Ontario. His portrait and an account of his work appeared n *The Gardeners' Chronicle* of July 3, 1926.

To the ladies and gentlemen from the United States, may I, in the following lines, extend the friendship of Canada. It is the spirit of the garden, and is entitled:

A Land Without a Line.

You came to the land of the Maple Leaf
And we met you with a smile,
We took your hands in a friendly grasp
And hoped you'd stay awhile.
Though you live 'neath the Stars and Stripes
And we 'neath the Union Jack,
We speak the same old mother tongue
Uncle Sam and Jack Canack.

Between us runs three thousand miles,
A line from coast to coast,
Where never a fort and never a gun
Is seen; we proudly boast
No bayonet with its murderous steel
No sentry anywhere,
And we live in peace on either side
As though no line were there.

Side by side for a hundred years,
May it be a thousand more!
With never a word to cause us grief
Nor any to make us sore.
We have lived and still the Union Jack
And Stars and Stripes unfurled
Have flown together on the line
The wonder of all the world.

Please God 'till earth's last Sun shall set
And earth's last tears be shed,
May we two nations still be friends
When to heaven Thou call'st the dead.
Until on that eternal morn
As its glorious sun shall shine
Thy nations meet around Thy throne
In a land without a line.

THE GENUS PRIMULA.

(Continued from p. 152).

PSEUDOMALACOIDES (L. B. Stewart). False Fairy P.
(Malacoides).

This perennial is a sub-species of P. malacoides. The rootstock produces several sparsely-leaved rosettes of rather fleshy foliage with broadly oblong-elliptic or elliptic, blunt blades about one-and-a-half inch long, usually abruptly contracted into a distinct, fleshy, downy stalk about two inches long; margins lobed and furnished with sharp, saw-like teeth terminating in a horny tip; both surfaces clothed with short, white hairs, underside coated with white meal. Flower stems numerous, slender, decumbent, twelve to sixteen inches long, sparsely coated with white meal and bearing several superposed umbels of numerous pale lilac, yellow-eyed blossoms. Corolla about half-an-inch across; segments flat, egg-shaped, deeply notched and slightly recurved; tube cylindrical, about a quarter-of-an-inch long, white at the base, yellow towards the mouth, sparsely mealy outside. Introduced in 1908. *Gard. Chron.* 1908, Vol. XLIV, p. 396, Figs. 164 and 165, under P. malacoides.

This plant is a native of Yunnan, western China.

Culture: As for P. Forbesii.

PSEUDOPETIOLARIS (Pax et K. Hoffm.). False Petiolate P.
(Petiolaris-Sonchifolia).

A dwarf, non-mealy, moderately hairy perennial with a tuft or rosette of membranous leaves, three-quarters- to one-and-a-half-inch long, including the stalk, with diamond-shaped-oblong, pointed blades half-an-inch to one-and-a-quarter-inch long, and five-eighths-of-an-inch to one inch wide, gradually tapering to a winged stalk; margins furnished with irregular teeth as though gnawed by insects. Flower stem obsolete or up to a quarter-of-an-inch long, bearing several blossoms on thread-like stalks about five-eighths-of-an-inch long. Corolla about half-an-inch long and three-eighths-of-an-inch across, with heart-shaped, notched lobes sometimes edged with small, rounded lobes or coarse teeth; tube cylindrical below, dilated and funnel-shaped at the throat, about a quarter-of-an-inch long, exceeding the calyx in length. Not in cultivation.

The plant was discovered near Matturu (Missurie ?) in the Himalayas, but the colour of its blossoms and the conditions under which it grows have not been recorded.

Culture: As for P. petiolaris would probably prove suitable.

PSEUDOSIKKIMENSIS (Forrest). False Sikkim Cowslip.
(Sikkimensis).

A very beautiful sub-species of P. sikkimensis, (Hook.). It is a deciduous perennial with a tuft of thin, somewhat flaccid, oblong-spathulate, blunt leaves, tapering to a broadly winged stalk, in all two to eight inches long; margins edged with small, sharp teeth; both surfaces more or less smooth. Flower stem five to eighteen inches tall, bearing a terminal umbel of many nodding, fragrant, bright canary-yellow blossoms on down-curved stalks. Corolla concave, from five-eighths-of-an-inch to nearly one inch across, divided into five rounded, notched segments; tube cylindrical below, funnel-shaped above, longer than the calyx. Flowers in June and July. In cultivation in 1913. *The Garden*, June 14, 1913.

Grows in damp, stony, alpine meadows and in crevices in limestone cliffs, on the Lichiang range, in Yunnan, western China, at 11,000 to 15,000 feet above sea-level.

Culture: Good calcareous loam, in an open spot well supplied with underground moisture when the plant is in growth, should suit it.

PUDIBUNDA (W. W. Sm.). Tibetian Cowslip.
(Sikkimensis).

This plant is a sub-species of P. sikkimensis (Hook. f.); it produces a large rosette of smooth, non-mealy leaves with narrow, obovate-spathulate blades two-and-a-half to three-and-a-half inches long, rounded or blunt at the tip, generally tapering at the base to a wedge-shaped stalk from two to three inches long; margins edged with sharp, saw-like teeth; upper surface conspicuously veined. Flower stem six to twelve inches tall, slightly mealy among the flowers, bearing an umbel of three to four somewhat nodding, pale yellow, fragrant blossoms, on slender, curved stalks under half-an-inch in length, covered with meal. Corolla funnel-shaped, concave, under half-an-inch across, with rounded, notched lobes; tube cylindrical, about half-an-inch long, slightly longer than the calyx. Flowers in July.

Grows in damp, open alpine situations near streams on the mountains of south-eastern Tibet (where it reaches an elevation of 15,000 feet above sea-level), north-western Yunnan, western Szechuan and the Sikkim Himalayas, near the Tibetian border, at nearly 14,000 feet.

Culture: Fibrous peat and sandy loam, abundantly supplied with water when the plant is in growth, with drier conditions when it goes to rest, are the conditions indicated.

PULCHELLA (Franch.). Pretty P.
(Nivales).

A very delightful perennial species with a rosette of rather thin leaves from two to four inches long, with narrowly lanceolate, pointed or blunt blades tapering to a narrow stalk; margins revolute and finely toothed; upper surface more or less smooth, underside coated with yellow meal. Flower stem six to twelve inches tall, erect, bearing a many-flowered umbel of rich violet, purplish-blue or mauve blossoms with a yellow or orange eye. Corolla about three-quarters-of-an-inch long and three-quarters-of-an-inch across, divided into five heart-shaped, notched or entire lobes; tube cylindrical, about twice as long as the calyx, with a little, ball-like tuft of white hairs in the throat. Flowers in June. Introduced in 1908.

Grows in dry, stony, calcareous mountain pastures, frequently in shade, in the Tali region of Yunnan, at about 7,000 feet above sea-level; also in south-eastern Tibet at Tongkyuk, at 10,000 to 11,000 feet, on shady banks of loose soil, and also in dry, stony meadows on the mountains around Muli, in south-western Szechuan, at 11,000 to 12,000 feet.

Culture: Good, gritty, calcareous loam in a well-drained, half-shady spot well supplied with water during the growing season, with protection from wet in winter, should suit it.

PULCHELLOIDES (F. K. Ward). Orange-throated P.
(Nivales).

A beautiful, perennial species with a tuft of blunt, linear-lance-shaped, somewhat thick leaves, about one-and-a-half inch long and three-eighths-of-an-inch broad, narrowed into an obscure stalk; margins slightly revolute and furnished with broad, regular, triangular teeth; upper surface emerald-green, underside densely covered with yellow meal. Flower stem six to fifteen inches tall, often sprinkled with yellow meal and bearing a terminal umbel of about eight pale violet, purplish-blue or mauve, fragrant blossoms with a yellow or orange throat, on rigid stalks about one inch long, sparsely coated with yellow meal. Corolla flat, about three-quarters-of-an-inch across, divided into five broadly heart-shaped, or oblong-egg-shaped, bilobed segments, mealy on the outer surface; tube cylindrical, slightly longer than the calyx, with a ten-lobed ring in the mouth. Flowers from June to August. Introduced in 1911.

Grows near Atuntsu, in north-western Yunnan, at about 13,000 feet above sea-level, also in south-eastern Tibet, at Kong Peri, and on Nyima La, under the shade of dwarf Oaks, also on the ledges of cliffs and on dry rocky slopes on the mountains east of Yungning, in south-western Szechuan.

Culture: As for P. pulchella.

PULCHRA (Watt). Dainty P.
(Petiolaris-Tongolensis).

A beautiful, dwarf, perennial species with a tuft of nearly smooth, non-mealy leaves from one to one-and-a-half inch long, with oblong or oval-oblong, undulate, pointed blades, heart-shaped at the base, abruptly contracted into a stalk from one to one-and-a-half inch long sheathing the rootstock; upper surface rich green, underside glaucous. Flower stem about one-and-a-half inch tall, bearing an umbel of two to ten purple blossoms. Corolla about one inch across, with broadly heart-shaped, cleft, seemingly more or less toothed lobes; tube longer than the calyx, funnel-shaped, with an obscure ring in the throat.

Grows near Jongri, in the Lachen valley, in the Sikkim Himalayas, at 12,000 to 13,000 feet above sea-level.

Culture: Grow it in good fibrous loam in a damp, open spot, well-drained in winter.

PULVERULENTA (Duthie). Dusty P.
(Candelabra).

The type of this well-known deciduous, perennial species has a short, stout rootstock and tufts of membranous, pulverulent leaves from six to eighteen inches long, with obovate or oblanceolate, blunt blades tapering to a long, winged stalk; margins edged with irregular teeth and at times obscurely lobed. Flower stem from eighteen to forty inches tall, mealy, bearing numerous superposed umbels of many deep rosy-purple or violet blossoms with an orange-brown eye; the spreading, mealy stalks are half-an-inch or more long. Corolla about one inch across, deeply divided into five broadly heart-shaped, notched lobes; tube cylindrical, longer than the calyx, with a ring in the throat. Flowers from May to August. Illustrated in *Journal* Roy. Hort. Soc., Vol. XXXIX, 1913. Introduced in 1905.

This beautiful plant, of which there are white, pink, rose and orange-coloured forms or hybrids in cultivation, grows in marshes on the mountains of western Szechuan, at 8,000 to 10,000 feet above sea-level.

Culture: It delights in good, rich loam in a damp, open or half-shady position, and is seen at its best on the banks of a stream or pond. *A. W. Darnell.*

(To be continued).

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)
(*Continued from p.* 154.)

CHESHIRE.—All fruit trees flowered profusely. Apples set well. The foliage on all the trees, on the whole, is clean. Strawberries were a good crop with healthy foliage, but owing to such dry weather, the fruits were soon over. Gooseberries, and Black and Red Currants have carried heavy, clean crops. Raspberries are very promising. Morello Cherries are a good average crop, but sweet Cherries never do well here. Plums are also poor. They set well, but owing to the dry weather they failed to stone. Apples are a splendid crop, the best varieties being Tylers' Kernel, Bramley's Seedling, Sandringham, Golden Winter Pearmain, Beauty of Bath, Emperor Alexander, Irish Peach, Warner's King, Frogmore Selected, Ecklinville, Mr. Gladstone, Beauty of Kent, Cox's Orange Pippin, King of the Pippins, James Grieve and Schoolmaster. The best Pears are Beurré Capiaumont, Catillac, Marie Louise d'Uccle, Pitmaston Duchess, Emile d'Heyst, Beurré Diel, Conference and Louise Bonne of Jersey. The weather, at the time of writing, is very dry and hot. The soil is a medium loam, on a subsoil of sand. *James R. Allan, Tirley Garth Gardens, Tarporley.*

—— It is many years since we experienced frosts of such severity as those that occurred in February. The cold north-east winds which prevailed after the frosts were over did much damage to fruit trees in flower; on April 26, ten degrees of frost were registered. Plums and Cherries suffered most. The most promising Apples are Beauty of Bath, Irish Peach, James Grieve, King of the Pippins, Wealthy, Dumelow's Seedling, Ecklinville, Keswick Codlin and Lane's Prince Albert, while Pears which are carrying good crops include Beurré Hardy, Beurré Superfin, Clapp's Favourite, Jargonelle, Marie Louise and Louise Bonne of Jersey. Small fruits have carried record crops, especially Black Currants and Gooseberries. The soil here is a sandy loam, over a stiff clay subsoil. *H. J. Thomas, Birtles Hall Gardens, Chelford.*

—— The majority of the Apple trees here are growing in a mixture of light clay and sand, with a sub-strata of sandstone. On the west side we have the Welsh hills, and on the south-east the Cheshire hills. The position is, therefore, rather exposed. The Apple crop is a good average one; the trees are clean, and after the recent rain the fruits are swelling well. Some of the flowers were damaged by frosts, in a very early stage, but the remainder opened clean and strong. The Strawberry crops, while very disappointing in some parts near here, in others were better than they have been for a number of years, and this in spite of the severe frost, and keen winds which brought every leaf down to the ground in the spring. Plums are a failure, owing to frost, but there was plenty of bloom. While Cheshire is not a Pear county, there appears to be quite an average crop. We spray our Strawberry plants regularly from an early stage, and are getting much improved crops thereby. *N. F. Barnes, Eaton Gardens, Chester.*

DERBYSHIRE.—Apples are a good average crop, but Pears suffered severely from frost when in flower. The recent rain will greatly benefit all hardy fruits after the long drought. *William Parks, Whittington Hall Gardens, Chesterfield.*

—— The general condition of the fruit crops here is, in most cases, satisfactory, although the Plum crop is more or less a failure, considering the number of trees here of a bearing age. This, however, is more than counterbalanced by the returns of small fruits, Black, Red and White Currants being overladen with fruits which, despite the drought, have been of first class size and of very good quality. Raspberries, also, have done well, both the red and yellow-fruited varieties yielding abundantly. Taking all points into consideration, the returns of Apples are very good, the best varieties being Worcester Pearmain, Keswick Codlin and Bramley's Seedling. Cox's Orange Pippin seems to do well here also. The soil in these gardens is of a heavy loam. *George H. Lightfoot, Smalley Hall Gardens, Smalley, nr. Derby.*

HERTFORDSHIRE.—The fruit crops in these gardens are below the average in some respects. Apples are very poor, as these suffered considerably through cold north-east winds and late frosts. We experienced twelve degrees on May 1 and six degrees on May 2. Pear crops are about average; Strawberries, Gooseberries and Black Currants are average, but Red Currants poor, while Plums also are very much under the average. The soil here is on the clay side, and in early spring very cold. *Wm. Jas. Penton, The Node Gardens, Welwyn.*

—— The hardy fruit crops in this district are quite up to the standard, in spite of the dry weather. Trees are very clean and free from aphis and are making quite good growth, Apples and Pears especially so. The bush fruits also are looking remarkably well and carrying crops above the average. Raspberries also are bearing very good crops. The soil here is a heavy loam and all fruits do very well in it when once they become established. Old orchard trees are bearing crops much above the average, such varieties of Apples as Warner's King, Blenheim Pippin and Dumelow's Seedling being exceptionally good. *William Stephenson, Hyde Hall Gardens, Sawbridgeworth.*

—— The fruit crops generally are quite disappointing, for although there was a generous amount of bloom, much of it failed to set, the frosts and generally adverse weather conditions doubtless being responsible. Blenheim Pippin Apples are almost a complete failure, but Lane's Prince Albert is carrying a good crop. Gooseberries, Currants and Raspberries have borne heavy crops of fruits. The soil is a good marly loam, overlying a bed of gravel, so that the effects of drought are soon felt. *E. F. Hazelton, Laurel House, Cravells Road, Harpenden.*

—— The fruit crops in these gardens are, on the whole, very good. Apples on young trees have had to be severely thinned, and standard trees, in most instances, are carrying very good crops. Pears are fruiting well, the fruits of some varieties having had to be thinned. Gooseberries, Black and Red Currants, and Raspberries are all bearing excellent crops, the last-named having been well supplied with water and a good mulch. Strawberries have been excellent both with regard to quantity and quality of the fruits. Peaches and Cherries are good but Damsons are scarce. *T. Pateman, Brocket Hall Gardens, Hatfield.*

—— The hardy fruit crops this year are not up to standard. Plums set well, but 22° of frost on April 14 did a great deal of harm. Plum trees on a north wall, being late to blossom, set their fruits well and are now carrying good crops. Apples are variable, but bush fruits, in general, have carried exceptionally heavy crops. *Richard Staward, Ware Park Gardens, Ware.*

—— The fruit crops here are not very satisfactory. Apples, especially, suffered from the prolonged drought, and many of the fruits have fallen. The fruits are much smaller than is usual at this time of the year. Pears are not an average crop, but the trees have not suffered so badly through lack of moisture as the Apples, and the fruits will be better than last year. Plums are very scarce owing to severe frosts when in blossom and after setting. Peaches and Nectarines are a light crop, but the fruits are good in quality; the trees are healthy and growing vigorously. Strawberries were almost a failure. Raspberries are a good crop, but the fruits are lacking in size and flavour. Gooseberries were of good quality and plentiful. *George H. Hill, Caldecote House Gardens, Bushey Heath, nr. Watford.*

(*To be continued*).

HOME CORRESPONDENCE.

Two good Day Lilies.—At the R.H.S. meeting on July 30, Mr. Amos Perry showed two excellent Day Lilies of his own raising. Hemerocallis George Yeld has "large open flowers nearly six inches across, outer petals rich orange, inner petals flushed and mottled orange-scarlet." This very handsome plant was recommended for trial at Wisley. The other, Margaret Perry, had already obtained the A.M. I should describe it as a brighter and more refined H. fulva. I have grown them now for two years and can strongly recommend them. *G. Yeld, Orleton, Gerrard's Cross.*

Apple Tree Stem Gnawed by Mice.—The following may interest your readers. We have, growing in our orchard here, an Apple tree of the variety Lord Grosvenor, the stem of which is about four inches in diameter at one foot from the ground. During the severe frost in the early part of the year mice attacked the tree and stripped off every particle of bark for about nine inches from the ground, making a complete ring. I confidently predicted the death of the tree, but as far as I can see, the stripping has not made the slightest difference to it. The leading branches have made from nine inches to twelve inches of growth, and the tree is carrying a bumper crop of fruits. *A. Howell, Park Hatch Gardens, Godalming.*

Best Dessert Gooseberries.—I submit a list of the best dessert Gooseberries of my experience, in the four recognised colours, in the hope that someone may suggest some better ones, or at least others whose merits should not be overlooked in the multiplicity of large berries for exhibition, for commerce, or unusually large ones designated Lancashire prize varieties. Among red varieties, I would place Red Champagne, Ironmonger, and Red Warrington (much used for making jam); yellow, Golden Gem, Langley Beauty, Yellowsmith, Yellow Warrington; green; Early Green Hairy, Glenton Green, Lancer, Pitmaston Green Gage; white, White Champagne, and Langley Gage. Of the above the Red Warrington can be grown to a good size, also Yellow Warrington and Golden Gem. Glenton Green is of medium size but is somewhat given to fungus diseases in the south, so that Early Green Hairy could take its place. Glenton Green has been known in England for sixty years or more. Yellowsmith lacks the tough skin and dense downiness of Whitesmith. *J. F.*

Rosa gigantea.—It may interest some readers to know that the name of this Rose, given by Collet and Hemsley, has undergone a new combination in America. Mr. Rehder and Mr. E. H. Wilson have concluded that R. gigantea is only a variety of the climbing Tea Rose. They have resuscitated R. odorata, Sweet, for this, so that the new combination is Rosa odorata var. gigantea. They describe it as climbing to a height of ten metres, that is, over thirty feet. The creamy-white flowers are four to six inches in diameter. The native countries are given as south-west China and Burma, and the date of introduction is 1889. R. odorata var. erubescens, Rehd. and Wils. is also described as a form of the preceding variety, with blush or pale pink flowers, often smaller, and native to western China. Curiously enough they do not know the date of introduction of the coloured variety, but add the note: "This form or the preceding variety is probably the phylogenetic type of the Tea Rose."

Viola cornuta.—The two varieties of the above, namely, V. cornuta var. Lavender Gem, and V. cornuta var. White Gem, shown at the meeting of the Royal Horticultural Society, on August 13 last, by Messrs. Watkins and Simpson, Ltd., and selected for trial at Wisley, might well have been accorded Awards of Merit, if only to emphasise the value of this truly perennial species and encourage the raising of even better varieties. Sometime in the sixties of last century, the late Mr. John Wills, of South Kensington, showed how valuable the old V. cornuta var. Perfection was for bedding purposes. This immediately became so popular that it found its way to the north of Britain in the beginning of the seventies, and was extensively cultivated as edgings for walks, for beds, and in ribbon borders, during the vogue for that style of flower gardening. At the end of the season the plants were more or less cut back, lifted and heeled in thickly in any open border. There they remained until they were required again for the above purposes, and by that time they were flowering freely. This showed their extreme hardiness, while they flowered freely until the end of the season. Three varieties came under my care, including the above, the other two being Enchantress and Magnifica. Both these had larger flowers than Perfection, which was about the size of V. cornuta var. Lavender Gem, but was a darker and more decided blue. *J. F.*

Lilium auratum.—The instance mentioned by *W. A.* (p. 126) of forty-eight flowers on a stem of this Lily is not the highest number known; as a stem—also fasciated—produced 110 flowers at Linton Park, Maidstone, in 1873; the late Mr. John Robson was gardener there at that time. He took great interest in the Maidstone Gardeners' Society, of which he was President, and exhibited the stem at one of its meetings. The plant was growing among Rhododendrons in a peat bed, and in a warm position, and had been there for several years. Some very fine stems from Scotland were exhibited at one of the autumn shows at Holland Park a few years ago, but I have no record of the number of flowers. It is a pity this fine Lily is so short-lived under outdoor cultivation; there are some fine stems with twenty-four flowers apiece at Kew at the present time in a Rhododendron bed; probably they are lifted every year. Kew is fortunate in having a good quantity of the variety platyphyllum, which is more vigorous than the ordinary form. *W. H. Divers, V.M.H.*

FRUIT GARDEN.

AUTUMN PRUNING OF FRUIT TREES.

Although the pruning tools are little used at this season of the year, there is good use to be made of them in the fruit garden just now. Most people cut out the old canes from Raspberries and Loganberries so soon as fruiting is over, and even Black Currants often receive timely attention, but, beyond this, pruning is considered to be essentially a winter job. It is evident that some pruning must be left until the dormant season, but that cutting out which may be more definitely be called thinning, can, with great advantage, be undertaken at once. Bright, sunny weather is often enjoyed in autumn, and nothing but good can accrue from allowing the sunshine full access to the wood which is to be retained for fruiting.

Red Currants may have all the growths but the terminals shortened considerably. Any branches needing removal from Gooseberry bushes may be cut out. Old bushes seem to need annual treatment in the removal of branches which touch the ground, and others which close the centre of the bush. The final winter pruning of the bush fruits will then consist merely of spurring back and tipping.

Among the Apple trees, branch thinning may be carried out where no crop is on the trees. It is surprising how different a tree appears now from what it does when leafless. One may wander around in winter with pruning saw and find little use for it, but, at the present time, it is easy to detect overcrowding which should have been prevented. One may state that it is almost impossible to thin out a tree satisfactorily when it is dormant. Many trees of both Apples and Pears which have reached considerable age are crowded with spurs which give abundant flowers and few fruits. The removal of one half or even two-thirds of the spurs often results in cropping. This work is rather tedious and not very pleasant on a cold, wintry day, and may be undertaken under more comfortable conditions now. *E. Brown, Hillside, Doddington, Sittingbourne.*

SOCIETIES.

ABERDEEN HORTICULTURAL.

August 15, 16 and 17.—The Royal Horticultural Society of Aberdeen held a fine show on these dates in the beautiful public park at Hazlehead, again kindly lent by the Aberdeen Town Council. The show must be reckoned one of the best held under the auspices of the Society in its 105 years' history. Additional interest was added to the occasion by the fact that this year the Scottish National Sweet Pea, Rose and Carnation Society held its provincial show in conjunction with the event. Unfortunately, the weather was not too kind on the second and third days. The Marchioness of Aberdeen and Temair gave the show a happy send-off, in the course of which she stressed the importance and delight to be derived from window gardens. Sir Thomas Jaffrey, Chairman, and Mr. W. B. Clark, Superintendent of Aberdeen's public parks, Vice-Chairman, were at their posts, while Mr. J. B. Rennett, Secretary, as is his wont, had all arrangements carefully carried out. The entries numbered 1,192, compared with 1,140 last year, and despite the strange weather experienced in the north this year, the quality of the exhibits was well up to standard.

Pot Plants.

These were very good generally. Mrs. W. A. Leith, Brackenhill, Aberdeenshire (gr. Mr. Alex. Gordon), had a notable win for the best group of pot plants arranged for effect on a space twelve feet by nine feet; second and third places were awarded the entries from the gardens of Morkeu and Balmedie. The Brackenhill entry was far and away the best, comprising finely-grown, healthy, beautifully coloured plants. For four specimen plants and Ferns, the honours went to Captain E. F. Lumsden, of Balmedie (gr. Mr. William Morrison); Mr. A. E. Benzie, Morkeu (gr. Mr. William Henderson) was first in two classes for Pelargoniums. Fuchsias, of which we hear so little nowadays, were finely shown from Brackenhill Gardens. Begonias, single and double, were outstanding, the leading places being taken by Sir Thomas Jaffrey, Edgehill (gr. Mr. James Cook), with exquisite specimens. The honours for the best four plants for dinner table decoration also went to Edgehill. Petunias and Gloxinias were best represented from Brackenhill Gardens.

Sweet Peas.

As is always the case nowadays, this section formed a great attraction and the competition was very keen. There was a stiff tussle between Annie, Lady Cowdray, Dunecht, Aberdeenshire (gr. Mr. William Smith), and Mr. John A. Grigor, Woodlands, Banff, for the best dozen vases of Sweet Peas, but the Viscountess won. Her entry included finely-grown and richly-coloured specimens of What Joy, Mrs. A. Searles, Grenadier, Sunkist, Jessie, Pinkie, Lassie, Magnet and Powerscourt. Mr. Grigor, however, with his fine blooms of Youth, Wizard, Hebe, Chieftain, Susan, Purple Monarch, Magnet and Grenadier, had little cause to be discouraged. Mr. Grigor also led for lavenders, with Powerscourt; pinks, with Pinkie; and purples, with Olympia.

Mr. A. S. Dow, Darnaway Castle, Forres, also did remarkably well in this section, being first for a vase blended for effect; for whites, with Victor; and for crimsons, with The Prince. Captain J. W. Guy Innes, R.N., Kirkville House, Aberdeenshire (gr. Mr. T. C. Gardiner), led for creams, with lovely specimens of What Joy. Mr. John D. Paton, Grandhome House, Aberdeenshire (gr. Mr. Cyril Cox), had a fine win for the best three vases (distinct), with fine blooms of Mermaid, Mrs. A. Searles and Olympia.

Cut Flowers.

Outstanding in quality and wealth of colour, this section is always a favourite at Aberdeen. For the best twelve ten-inch vases of hardy herbaceous flowers (distinct), Mr. Cox, of Inchmarlo, Kincardineshire (gr. Mr. Alex. Duncan), led finely, followed closely by Lord Sempill, Fintray House, Aberdeenshire (gr. Mr. W. D. Anderson). Chrysanthemums were best shown from the gardens of Stoneywood House, Aberdeenshire (gr. Mr. G. Meldrum); Grandhome House, and Fintray House. Mr. D. Whitelaw, Laurencekirk, was first for Gladioli. Decorative Roses were well shown, the honours being shared by the entries from the gardens of Grandhome House, Stoneywood House and Brackenhill. Balmedie Gardens sent the finest three vases of Roses (distinct). Dahlias formed a very fine class, the leading honours for Collerette, Cactus and Single Dahlias all going to Grandhome entries. Stocks were well shown, the Inchmarlo exhibits taking pride of place. For twelve vases, distinct varieties, of cut flowers, the Darnaway Castle entry left little to be desired. Carnations and/or Picotees made a pleasing display, Balmedie House leading. The Zonale Pelargoniums from Dunecht were well shown, as also were the eighteen Rose blooms from the same gardens. Begonias made a capital display; Sir Thomas Jaffrey, Edgehill, had all his own way here for both single and double varieties. They formed a really fine feature of the section. He also won leading places for sprays and buttonhole bouquets.

Fruits.

The weather this season has not been just all one would like, but this did not prevent a wonderfully good display. To Fintray House went the leading place for the best collection of hardy fruit, which included fine specimens of Diamond and Victoria Plums; Bramble (cultivated), Moor Park Apricot and Worcester Pearmain Apple. The Strawberries from Grandhome Gardens were fine specimens, but, unfortunately, this fruit has been far from a success from a commercial point of view in Scotland this year. The best specimens included Sir Joseph Paxton and Tardive de Leopold. Blackberries, Raspberries, Gooseberries (yellow and green), and Red and Black Currants, made a good display, the outstanding entries coming from the gardens of Kirkville House, Brackenhill, Inchmarlo, Stoneywood House, Linton House (gr. Mr. A. Ferguson), R. Duncan, Old Montrose, and Mr. J. H. Gait, Oddjest, Stonehaven, Kincardineshire.

The entries of Grapes were more numerous than has been the case at Aberdeen for some years. Lord Sempill and Sir James Burnett, Bart., of Leys, Crathes Castle (gr. Mr. William Grant), shared the leading honours with nicely-grown bunches. The best dessert and baking Apples came from Annie, Lady Cowdray, with finely grown samples of Lord Rosebery and Rev. W. Wills, and she also provided the best Peaches. From Balmedie Gardens came the best Melons, Nectarines, Plums and other Pears. Jargonelle Pears were best shown from Darnaway Castle.

Vegetables.

The " north-east neuk " of Scotland has always been famous for the fine quality of vegetables grown there. There was no exception to the usual rule this year, some remarkably fine, shapely, and clean-grown produce being forwarded. For the best collection of vegetables arranged on a table space four feet by three feet, and consisting of eleven kinds, viz., Pea, Cabbage, Cauliflower, Potato, Turnip, Carrot, Onion, Parsley, Beetroot, Celery and Tomato, the entry from Colonel Blair Imrie, Lunan House, Arbroath (gr. Mr. R. Harper), right worthily carried off the premier honours. It was a remarkably fine exhibit, and reflected the highest credit on all concerned. Colonel Blair Imrie also led for Cucumbers and Onions.

The other leading awards went to Stoneywood House, for Tomatos, Leeks, Celery and Parsnips. Edgehill House sent the best basket of salads, Carrots (stump-rooted) and Turnips (yellow); Kirkville House provided the leading Carrots and Cauliflowers; Colonel Stewart, Banchory House, Kincardineshire (gr. Mr. R. McQueen), had the best Peas and Beetroot (long), the best globe variety coming from Linton House. Crathes Castle led for Broad Beans, and Darnaway Castle for French Beans. The vegetable Marrows from Grandhome House were easily the best.

Potatos have always a special section at

Aberdeen, as northern growers take a great pride in this valuable tuber. For the best collection of six varieties, the Stoneywood House entry was first; and for a collection of four varieties the premier honours went to Sir **Thomas Jaffrey**. He showed also the best round, white (Arran Comrade). Inchmarlo Gardens had the best round, coloured (Climax). Mrs. **Wood**, Camphill, Aberdeenshire (gr. Mr. Charles Murray) with Duke of York, led for kidney-shaped, white, and Stoneywood House led for kidney-shaped, coloured, with Exhibition Kidney.

The model gardens were also much admired, and the wild flowers sent in by boys and girls under fifteen years of age formed a pleasing feature.

Nurserymen and Florists.

The leading feature in this section was the fine Roses exhibited by Messrs. **Adam and Craigmile**, Aberdeen, and for which the firm was awarded the Silver Challenge Cup. Their winning entry comprised superb specimens of the finest sorts now in commerce.

Messrs. **Allwood Bros.** had an exhibit of a new race of Dianthus, for rockeries, in which were fine specimens of Titania, Oberon, Tinkabell, Puck and Ariel. They also showed the new Carnation (1930 novelty) Peter, and Molly, Roger and Barbara.

Non-Competitive Displays.

An outstanding feature of the show was the fine displays made for exhibition only by leading nurserymen and florists. Space will not permit a detailed account of these. The firms deservedly worthy of mention were Messrs. **Allwood Bros.**, Messrs. **Ben. Reid and Co.**, Messrs. **Knowles and Sons**, and Messrs. **W. Smith and Son**, of Aberdeen.

Amateur Section.

Some capital produce was shown in the various classes in this section. The Silver-gilt Medal awarded by *The Gardeners' Chronicle* for the best amateur exhibit was worthily won by Mrs. L. **Harper**, Fernbank, Insch, Aberdeenshire, for six vases of Sweet Peas. This lady was also first for the best collection of vegetables with an entry that would have done credit to any show. Altogether, the amateurs did splendidly, and none were more hearty in their admiration and congratulations than the experts and professional men who understood the care and attention that must have been bestowed before such fine results could have been produced.

SHROPSHIRE HORTICULTURAL.

August 21 and 22.—On these dates the Shropshire Horticultural Society celebrated its fifty-fifth year of useful existence by holding a wonderfully fine exhibition in the famous Quarry, at Shrewsbury. For half-a-century or so, the Shrewsbury Floral Fete had few, if any, serious competitors in the English provinces, and it was the desire of every ambitious young gardener to attend the show, if only once, because outside London there was nothing to compare with it. In recent years, however, the great Salopean Floral Festival has not occupied the solo position it held for so long a period, but, fortunately, the small amount of serious competition the show has experienced has only served to enhance its reputation and increase its brilliance, while now, as ever, the "young gardener" makes the pilgrimage to the picturesque old town of Shrewsbury, to add to his knowledge and broaden his outlook. But, nowadays, he will find not only many like-minded young fellows of his own age there, besides the many veteran exhibitors and representatives of well-known seed and nursery firms, but he will find in the crowd many other people from many other countries, for there are usually visitors from Holland and Germany, India and the United States, as well as from Scotland and Ireland, while the tone of their voices will betray the many who come across the Severn from "Gallant Little Wales."

Mr. Ward, the Superintendent of the Shrewsbury Parks, has this year provided one of his very best floral displays in The Dingle—that pretty hollow endowed with a large rock garden and a brilliant flower garden, set amid the trees that are so fine a feature of the Severn-bordered Quarry.

The Schedule for 1929 included one-hundred-and-seventy-eight classes, and the prizes offered amounted to about £1,550, in addition to Challenge Cups, trophies and Medals, while no fewer than three special trophies—real works of art—together with thirty medals, were at the disposal of the judges for award to non-competitive exhibits, which, as a whole, were never finer in quality than on this occasion. The artistically-beautiful, brilliantly-coloured display of finely-grown vegetables from the Hon. **Vicary Gibbs**; the splendid array of vegetables from Messrs. **Sutton and Sons**; the fruit trees in pots from the **King's Acre Nurseries**; the rock and water garden from Messrs. **Bakers**; the Dahlias from Messrs. **Dickson and Robinson**; the Roses from Mr. T. **Robinson**, and from Messrs. **Alex. Dickson and Sons**, were a few exhibits of outstanding excellence and attractiveness.

Throughout the competitive section the exhibits were generally of high quality and the competition good. There is not now the keen excitement that used to attend the big class for Grapes, but in almost every district the level of quality has been raised.

A host of judges was needed to adjudicate on this occasion, and they commenced business at 9 a.m., and most of the sets had finished and the awards were placed on the prize-winning exhibits by the time the public were admitted at 10.30.

As usual, the organisation of this great show was carried out capably by Mr. Brazier and his staff, and his efforts were ably seconded by the Chairman of Committee, who had a reception on the eve of the show, at which judges, leading exhibitors and pressmen were entertained.

Groups.

The Silver Challenge Cup, valued at fifty guineas, presented by the Shrewsbury Chamber of Comerce, is offered as a first prize, plus £45, in the class for a group of miscellaneous and fine foliage plants "arranged to produce the best effect, and occupying a space of 300 square feet." This handsome award was won by Sir **George M. Kenrick** (gr. Mr. J. V. Macdonald), Whetstone, Edgbaston, with a fine effort that was well worthy of this veteran exhibitor. The whole arrangement was graceful and bright, and Mr. **Macdonald** had made the best use of Palms, Ferns, Selaginella, Humea elegans, Lilium speciosum, L. auratum, Clerodendron fallax, Begonias, Fuchsias, Codiaeums, Nandina domestica, Laelio-Cattleyas, Oncidiums, Brassias, Ixoras and Francoa ramosa. Second prize was awarded to Messrs. **James Cypher and Sons**, Cheltenham, whose display, while good, lacked something of brightness. It contained fine Palms, Humeas, Codiaeums, Haemanthus carnea, Vallotas, Lilium speciosum, L. Henryi, Ixoras, Francoa ramosa, Dracaenas and Cypripediums. Mr. W. R. **Manning**, Dudley, gained third place, and Mr. T. M. **Petch**, Bradford, fourth.

Messrs. **James Cypher and Sons** led in the less attractive class where ornamental foliage plants only were allowed in the production of an artistic group arranged on a space of 250 square feet. The premier award in this case was £35, and it was worthily won by the Cheltenham firm with a very pleasing association of Palms, Ferns, Codiaeums, Dracaenas, Acalyphas, Alocasias, foliage Begonias, Caladiums, Nandina domestica of fine colour, and an edging of the dainty little Caladium argyrites. Highly-coloured Selaginella was also used effectively. Sir **George Kenrick** won the second prize, but his display lacked the colouring seen in the first prize display. Third and fourth prizes were awarded, respectively, to Mr. W. R. **Manning** and Mr. T. M. **Petch**.

Mr. H. **Howells** won first prize for a group of flowering plants of one kind only, and his exhibit was a very attractive one of well-grown Fuchsias, some of them trained in fan-shaped style.

The best group of aquatic and bog plants was arranged by Mr. W. **Taylor**, Grinshill, who had a pleasing water garden, with a pool of Water-Lilies set amid Funkias, Trollius, Carex, Poteriums and Lythrum roseum, backed by giant Maces, Reeds and tall Thalictrums. Messrs. **Bowell and Skarratt** were placed second and Mr. P. **Gardner**, Addingham, third.

J. **McCartney**, Esq. (gr. Mr. C. Potts), Bolton, was the only exhibitor of a table group of Orchids, and was awarded the first prize for a contribution that included Odontoglossum grande in good form, Odontioda Charlesworthii, Vanda coerulea, Cattleya gigas, C. Hardyana, Epidendrum vitellinum var. majus, and Odontoglossum Lilian.

Mrs. **Fielding** (gr. Mr. G. Reynolds), Marshbrook, was the premier competitor in the class for a group of Begonias.

In the Shropshire County Class, for a group of plants arranged for effect on a ground space of 100 square feet, Mr. H. **Howells** led with a pleasing exhibit of Coleus, Trachelium coeruleum and Campanulas; Mr. J. **Savage**, Kitley, was second, and Mrs. **Fielding**, third.

Sweet Peas.

These popular flowers were shown extensively and in surprisingly good form considering the long period of drought experienced in most parts of the county.

It was a little unfortunate that in the particularly attractive class for a display of Sweet Peas, to be arranged on a table space twelve feet by six feet, the exhibits were far too close together. The competitors must have had considerable difficulty in arranging their displays at such close quarters, while the fine effect the class could have produced was entirely lost to the general public. The first prize of £15 and a trophy of the value of fifteen guineas was won by Messrs. E. **Leigh and Sons**, Tittenson—the firm that showed so well at Bakewell Show—whose exhibit was much admired by Sweet Pea specialists and those other folk who had the patience to examine it as closely as possible. Leading varieties shown were Royal Purple, Powerscourt, Mrs. Horace Wright, Sunkist, Mrs. A. Searles, Mammoth and Magnet. The flowers were allowed to be arranged in baskets, vases and any other kind of suitable receptacle, therefore the exhibitors were able to produce a fine effect. Wires or other supports for the flowers, or the exhibition of spikes with haulm attached, were not allowed. Messrs. **Herd Brothers**, Penrith, won second place, and Mr. R. **Challinor**, third.

The best dozen bunches of Sweet Peas, distinct, in a trade-excluded class, were shown by Miss K. A. **Hughes** (gr. Mr. J. Hughes), Gresford, who won with fan-shaped bunches of fine flowers of Pinkie, Model, Olympia, Powerscourt, Mrs. A. Searles, Ascot, Magnet, Bluebell, Youth, Valetta, Royal Mauve and Susan; second, Mrs. M. N. **Richards** (gr. Mr. S. Horton), Denbigh; third, Mr. W. **Weaver**, Mold. Mr. S. L. **Haycocks**, Gyfelia, Wrexham, led for six bunches, distinct, with excellent examples of Jessie, Magnet, Powerscourt, Mrs. A. Searles, Royal Mauve and Gorgeous; second, Mr. A. **Smith**.

Roses and Dahlias.

Messrs. **Gunn and Sons**, Ltd., Olton, secured the fifteen guinea trophy and £20 offered as the chief prize in the class for a collection of cut Roses artistically arranged on a space twenty feet by four feet, with a height limit of ten feet. Their display was an effective one, but the flowers were on the small side, although very bright and clean; Sunstar, Margaret McGredy, Lady Inchiquin, Mrs. Barraclough, Mrs. Henry Morse and Los Angeles were especially attractive varieties; second, Messrs. **Bees, Ltd.**

Messrs. **W. Treseder, Ltd.**, Cardiff, set up the finest collection of Dahlias, arranged on a ground space of twenty feet by five feet. Competitors were limited to a height of eight feet from the ground, and were cautioned that "lightness and effective staging, as well as quality, will be considered the test of merit." The Cardiff group contained fine flowers of several sections pleasingly arranged in stands of varying height; J. M. Davis, Edna Ferber, Dr. Helmut Spath, Emblem and Goldrose were a few outstanding varieties. Mr. H. Woolman, Shirley, Birmingham, came second, and showed H. D. Cartwright, King Tut, Salsbach's White, H. Lawrence and Hebe in great style; third, Mr. E. Clegg, Derby.

Messrs. Bees, Ltd., led for a collection of Gladioli, thus adding another fifteen-guinea trophy to their tale of awards. They had large sheaves of numerous varieties, including Rubina, Brilliant, Fire King, Yvonne, Jacoba van Bieren and Superba. Second, Messrs. Clement Dally and Co., Kidderminster; third, Mr. E. J. Bagley; fourth, Mr. R. Challinor, Balterby.

Mr. Tom Jones, Ruabon—formerly a famous Sweet Pea exhibitor—won premier honours for a dozen vases of Gladioli of the Primulinus section, and showed beautiful, clean flowers and spikes of Exenatte, Orange Queen, Salmon Beauty, Souvenir and Zanthis; Mr. T. Waterhouse, Crewe, second; and Mr. W. Samuel, Wrexham, third.

For a dozen vases of large-flowered Gladioli, Messrs. George Mair and Sons were easy first prize winners, and they showed magnificent, full-flowered spikes of superb varieties, a few of these being King George, Cecil, Ivanhoe, Corisande, Jessie, Mrs. Galbraith, Pimpernelle and Guy Mannering.

Hardy Flowers.

The fifteen-guinea trophy and £25 in cash, offered as the premier award in the class for a collection of herbaceous plants, flowers and foliage, arranged on a ground space of 250 square feet, was won by Messrs. Bees, Ltd., who had a glorious display wherein they had splendid and bold sheaves of Hollyhocks, Gladioli, Lilium Henryi, L. speciosum, L. tigrinum, L. auratum, Kniphofias, Phloxes, Liatris, Scabious, and many other fine border plants. Everything was finely grown, and the bold arrangement and gorgeous colouring arrested attention. Messrs. M. Prichard and Sons, Christchurch, secured second place, and their display was particularly notable for the superb Kniphofias it contained. These were a striking, colourful and stately feature, and some of the outstanding sorts were B. G. Prichard, Volante, Sirius, C. M. Prichard and Ruby. Other good things in this handsome collection were Crinum Powellii, in very fine condition, Lilium tigrinum, Phloxes and Gladioli.

Messrs. Bees, Ltd., secured first prize for a set of eighteen bunches of hardy flowers, and in their collection they had good examples of Gladiolus Yvonne, Cimicifuga racemosa, Yucca filamentosa, Lilium auratum and Phloxes.

Montbretias were best shown by Messrs. M. Prichard and Son, who had a very bright group of these graceful flowers. Prizes for Antirrhinums were won by Mr. A. J. Buston and Mr. E. H. Shorting. Mr. A. D. Picton, Bangor-on-Dee, had the best collection of Phloxes.

Miss Howell (gr. Mr. C. J. Burgess), showed the best set of hardy and half-hardy annuals, and contributed a fine collection of Zinnias, Tagetes, Anchusa, Alonsoa, Candytuft, Calendula, etc.; second, Colonel. T. Decker (gr. Mr. G. Gilbert), Loppington House. The best group of hardy and half-hardy annuals was shown by Mr. H. Clarke, and Mr. E. J. Bayley came second.

Floral Designs.

The various exhibits in this section appeared to be somewhat crowded, and perhaps this led to the impression that, taken as a whole, the display of floral designs was not quite up to the Shrewsbury standard.

Mr. A. Adshead showed the best three bouquets—two of Roses and one of white Carnations, and Mrs. J. Nixon was placed second. The same competitors occupied similar positions in the class for a bridal bouquet, Mr. Adshead, using white Carnations, and Mrs. Nixon, Gloriosa and Abutilon flowers.

Mrs. Nixon led for a basket of flowers, with a bright display of Celosias, Anthuriums and Gladioli; Mr. Adshead, second. For a basket of hardy flowers, Mrs. J. Nixon led with a brilliant design composed of Kniphofias, Gladioli and Chrysanthemums; Miss Newshaw, second. Miss Newsham showed the best bowl of garden flowers.

Decorated Fruit Tables.

Considerable interest invariably attaches to the class for a decorated table of fruits, the latter to consist of twenty-four dishes, in not fewer than nine distinct kinds. Not more than a dozen bunches of Grapes are allowed and these in not fewer than four varieties. The schedule contains a scale of points for judging in this class, and the points awarded (so well as the maximum) are set out on a long card and placed on each table after the judges have made their awards. These points are closely scrutinised by many gardeners who attend the show, and some interesting comments are made where the points awarded do not meet with the approval of these critics, who, of course, have not the opportunity of comparing and even handling the fruits, as have the judges.

The fifteen-guinea trophy and £30 form a handsome first prize, which was won by the Earl of Rosebery (gr. Mr. Lindores), Mentmore, Leighton Buzzard, with capital Muscat of Alexandria Grapes, Sea Eagle Peaches, Pineapple Nectarines, Souvenir de Congres Pears, and Early Transparent Gage Plums, to mention only a few of the sorts displayed. The total points came to 143½. Lady K. Curzon-Herick (gr. Mr. J. McBean), Loughborough, came second, with 140 points; Lord Belper (gr. Mr. J. McCartney), Kingston Hall, Derby, third, with 138 points; and Messrs. J. Webber and Son, Minehead, fourth, with 114½ points.

Dessert Fruits.

T. S. Hall, Esq. (gr. Mr. G. Richardson), Chard, led in the class for a dozen dishes of fruits, winning with pleasing specimens of Muscat of Alexandria and Appley Towers Grapes, Blenheim Orange and Emerald Gem Melons, Royal George and Crimson Galande Peaches, Dr. Jules Guyot Pears, Brown Turkey Figs, Jefferson Plums, Moorpark Apricots, and Pineapple and Spencer Nectarines. Second, Colonel Heywood-Lonsdale; third, Lord Swaythling (gr. Mr. F. J. Rose), Southampton; fourth, Lady Juliet Duff (gr. Mr. H. Weaver), Coombe Court, Kingston, Surrey.

Colonel Heywood Lonsdale (gr. Mr. J. Mills), Shavington Hall, secured first prize for a collection of nine dishes of fruits in nine distinct varieties and not fewer than seven kinds, winning with good Appley Towers and Muscat of Alexandria Grapes, Hale's Early and Royal George Peaches, Hero of Lockinge and Princess of Wales Peaches, Early Rivers' Nectarines and Williams Bon Chrétien Pears. Second, J. H. Jones, Esq. (gr. Mr. W. R. Catt), Buntingdale; third, Captain W. W. Hayes (gr. Mr. A. Maddock), Stanton.

Grapes.

In the principal Grape class a dozen bunches are required, in four or more varieties and no more than four bunches of one variety. The first three prizes offered are £20, £16 and £12, respectively. Here, again, the points awarded are displayed to public view, side by side with the maximum points available.

Chief honours fell to R. J. Corbett, Esq. (gr. Mr. J. Jones), Towyn, who showed Black Hamburgh, Madresfield Court, Mrs. Pince and Muscat of Alexandria in good condition, the bunches being very even and shapely, although not especially heavy. The points awarded were 85 out of a possible 116. Messrs. J. Webber and Sons came second with 83½ points out of 116, and Lady Palmer (gr. Mr. S. J. Robbins), Cefn Park, third, with 73½ points out of a possible 112.

The best four bunches of Grapes were shown by Lord Swaythling; second. Colonel Heywood-Lonsdale; the winning set was composed of excellent bunches of Muscat of Alexandria and Madresfield Court, superbly grown.

Lord Swaythling had the best two bunches of Madresfield Court Grape; Messrs. J. Webber and Sons led for "any other" black variety, and Colonel M. Hughes was first in the class for Black Hamburgh. Lady Hall and G. R. Mellor, Esq. (gr. Mr. C. Price) had the best white Muscats, with the Earl of Rosebery second.

In the Shropshire classes, Viscount Clive (gr. Mr. G. Jones), Styche; J. H. Jones, Esq., W. W. G. Phillipps, Esq., and Colonel Heywood-Lonsdale were prize-winners in Grape classes.

Vegetables.

Vegetables of fine quality filled one large tent, and it is seldom we have entered a tent where the odour of Onions was so strong as in this one. In the numerous single dish classes the produce was exceptionally good and the competition appeared to be very severe.

In the open class for a dozen distinct kinds of vegetables, Messrs. J. Jones and Son, Ammanford, won the Silver-gilt Medal and £7 offered as first prize and, as always, they showed splendid examples of fine produce, clean, fresh and well-arranged. Onions, Peas, Potatos, Tomatos, Leeks, Runner Beans, Celery and Cauliflowers were the pick of a fine set. Second, Mr. W. Robinson; third, Mr. A. H. Hickman.

Lord Riddell (gr. Mr. A. Payne), Tadworth, secured the premier awards in the class provided by Messrs. Sutton and Sons, for nine kinds; second, A. H. Hickman, Esq. (gr. Mr. J. F. Parker), Cookly, Kidderminster. In Messrs. J. Carter and Co.'s class, Mr. T. M. Jones, Llandilo, was placed first, with Mr. Hickman, second, and Mr. J. Jenkins, Aberdare, third.

Mr. W. Robinson, Garstang, led in Messrs. Clibran's class, with Mrs. H. Follard (gr. Mr. H. Watkins), Swansea, second. Mrs. F. Emnot, Lancaster, and Mr. W. H. Jones, Clive, were placed first and second, respectively, for nine kinds of vegetables in Messrs. Dickson and Robinson's class; while in the class provided by Messrs. John Peed and Son, Mr. J. Evans, Llandilo, Mr. W. Robinson and Lord Riddell were placed as named.

In the Shropshire class for nine distinct kinds of vegetables, the produce shown was again excellent; Colonel Heywood-Lonsdale won the first prize, and Mr. W. H. Jones was a good second.

Trophy and Medal Awards.

President's Prize.—This prize, a work of art valued at £25, was awarded to the Hon. Vicary Gibbs (gr. Mr. Edwin Beckett), Aldenham House, Elstree, for a large and unique display of vegetables, this being considered the finest non-competitive exhibit in the show.

Special Trophies.—These two awards—again works of art—valued at £15 15s. each, were awarded respectively to Messrs. Sutton and Sons, Reading, for their effective display of fine vegetables; and to Messrs. Bakers, Wolverhampton, for their rock and water garden, Phloxes and floral designs.

Large Gold Medals.—To the King's Acre Nurseries, for fruit trees in pots, Roses and early flowering Chrysanthemums; to Messrs. Blackmore and Langdon, for Begonias and Delphiniums; to Messrs. John Peed and Son, for stove and greenhouse plants; to Messrs. Dickson and Robinson, for Dahlias, Stocks, Gladioli, etc.; to Messrs. Dobbie and Co., for Dahlias and Roses; to Mr. Thomas Robinson, for Roses; to Mr. W. J. Unwin, for Gladioli; to Messrs. E. Webb and Sons, for annual and other flowers; to Messrs. Alex. Dickson and Sons, for Roses; and to Messrs. J. Kelway and Son, for Gladioli.

Gold Medals.—To Messrs. Allwood Bros., for Carnations and hybrid alpine Dianthi; to Messrs. W. Lowe and Son, for Roses; to Messrs. S. McGredy and Son, for Roses; to Messrs. E. Murrell, Ltd., for Roses and hardy flowers; to Mr. Klinkert, for Topiary; to Messrs. W. H. Simpson and Sons, for Antirrhinums and Phloxes; to Messrs. Dicksons (Chester), for Gladioli, etc.; to Messrs. Daniels Brothers, for hardy flowers and vegetables; to Messrs. Jarman and Co., for hardy flowers; and to Mr. F. Rich (Worcester), for hardy flowers.

Silver-gilt Medals.—To Mr. H. Clarke, Taunton, for hardy flowers; to Messrs. Pritchard and Sons (Shrewsbury), for Roses and hardy flowers; to Mr. W. Wells, junr., for Phloxes; to Mr. H. N. Ellison, for Ferns; to the Rolvenden Nurseries, for Statice profusa var. superba; to Mr. H. S. Woolman, for Dahlias, etc.; to Mr. C. Vickers, for floral designs; and to Messrs. Rich and Cooling, for hardy flowers.

ROYAL HORTICULTURAL.

August 27.—Probably owing to the fact that most of the leading nurserymen were at Southport, the show held in the new hall in conjunction with the meeting of the above Society on this date was a small affair. There were no exhibits of Orchids, but the displays of herbaceous flowers, Dahlias, Roses, Carnations and shrubs helped to fill the central portion of the hall, the aisles of which were not utilised. The Orchid Committee recommended Awards of Merit to two out of the several novelties shown before it, and one Certificate of Preliminary Recognition. The Floral Committee recommended three Awards of Merit, and the Fruit Committee recommended two seedling Plums for trial at Wisley. The Joint Dahlia Committee, which sat for the first time this season at this meeting, recommended three Dahlias for trial at Wisley.

Orchid Committee.

Present: Mr. Lionel de Rothschild (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. A. Dye, Mr. J. E. Shill, Mr. J. C. Cowan, Mr. T. Armstrong, Mr. E. R. Ashton, Mr. Stuart H. Low and Mr. S. W. Flory.

Awards of Merit.

Miltonia Bleuana var. Langley Ruby (M. Bleuana var. Reine Elizabeth selfed).—A very charming variety, of velvety ruby-crimson colouring, margined with white. The upper sepals are recurved, while the disc at the base of the large, lobed lip is primrose-yellow. Shown by Messrs. Black and Flory.

Laelio-Cattleya Titymona var. Rotunda (Cattleya Tityus × L.-C. Monus).—An exquisite bloom of grand form and size, the sepals and frilled petals being rose-lilac in colour, while the large, frilled lip is rich, velvety reddish-purple, with a yellow, veined throat. A very handsome Orchid, shown by R. Paterson Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly, Sussex.

The only other award made by this Committee was a Certificate of Preliminary Recognition to Miltonia memoria H. T. Pitt var. Exquisita, also shown by R. Paterson, Esq. The flowers are velvety-crimson, shaded with pale pinkish-lilac, with a small biscuit-coloured eye.

Floral Committee.

Present: Section A.—Mr. H. B. May (in the chair), Mrs. Wightman, Mr. C. E. Pearson, Mr. D. Ingamells, Mr. D. B. Crane, Mr. W. B. Gingell, Mr. J. M. Bridgeford, Mr. W. Howe, Mr. M. C. Allwood, Mrs. Lindsay Smith, Mr. C. F. Langdon, Mr. Hugh Dickson, Mr. A. E. Vasey, Mr. J. B. Riding and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. C. T. Musgrave (in the chair), Mr. E. A. Bowles, Mr. G. Harrow, Mr. G. Reuthe, Mr. A. Bedford, Mr. F. G. Preston, Mr. Reginald Cory, Mr. Mark Fenwick and Lady Beatrix Stanley.

Awards of Merit.

Hedychium Gardnerianum.—An enormous inflorescence of this striking Himalayan species was shown. The stout flower-spike was nearly eighteen inches tall, the numerous slender-petalled, yellow blooms, with long, protruding, reddish stamens, being arranged in perpendicular rows. This species, which has been described as the queen of the genus, is figured in the *Bot. Mag.*, t. 6,913. Shown by F. Kemp, Esq., Hayward's Heath.

Crassula sarcocaulis.—Although not new to cultivation, this attractive little semi-hardy Succulent is not often met with. It succeeds out-of-doors in a sunny position on the rock garden, in light, well-drained, loamy soil, and under such conditions may survive an average English winter, especially if provided with overhead shelter, but it is best grown as an alpine house subject. The specimen shown was a rounded bush about eight inches high, the gnarled branches imparting to it an appearance of old age. The short, young growths are clothed with small, narrow, fleshy, glaucous leaves, and are each terminated at this season of the year with compact clusters of small, pink, tubular flowers, toothed at the mouth to impart a star-like appearance, and reddish on the outside. This plant is sometimes offered by alpine plant nurserymen, and is well worth securing. Shown by The Director, R.H.S. Gardens, Wisley.

Chrysanthemum Winnie Avery.—An attractive Decorative variety which should prove useful for market purposes. The shapely blooms, with incurving petals of good texture, are bright golden-bronze in colour. Shown by Mr. C. T. Kipping, Althorne, Chelmsford.

Groups.

Perhaps one of the most striking exhibits at this meeting was a grand display by Messrs. Sutton and Sons, of Asters in various types and in many shades, from pure white to purple and scarlet, the Mammoth and Ostrich Plume varieties being exceptionally fine.

Mr. H. Hemsley showed a mixed collection which embraced Dahlias in variety, including several splendid Cactus and large-flowered Decorative sorts, with a central mass of Sidalceas in several colour shades. Herbaceous flowers, including several first-class Phloxes, together with Lupins, Delphiniums, Heleniums and Liatris, were charmingly arranged by Messrs. E. J. Redgrove and Sons; the Misses K. and E. Hopkins also had a small group of herbaceous subjects. Coreopsis, Heleniums and other herbaceous flowers were exhibited by Mr. A. Miles, while Mr. S. F. Goodliffe staged Dahlias in variety and of good form, together with Eryngiums, Scabiosa caucasica, Phloxes, Lupins and Delphiniums; a small but very attractive display.

Messrs. Dawkins arranged a group of exceptionally well-grown African Marigolds in two varieties, Improved Lemon and Improved Orange, both of rich colouring, in association with the dainty, dwarf Coreopsis Tom Thumb Beauty.

Messrs. S. Bide and Son, Ltd. showed Sweet Peas in grand condition, their outstanding varieties being Youth, Picture, Magnet, Purple Perfection and Model. Roses were displayed by Messrs. B. R. Cant and Sons, Ltd., Mr. J. H. Pemberton and Messrs. Allens, the last-named firm showing lovely pillars of Emma Wright, Golden Emblem, Charles P. Kilham, Dame Edith Helen and Etoile de Hollande.

Messrs. H. Langridge and Co. were responsible for a small group of Dahlias of various sorts, chiefly of the large-flowered Decorative type, with a background of grand spikes of Gladioli, including such beautiful Primulinus varieties as Alice Tiplady, salmon; Flora, cream; Dawn, Marechal Foch and Orange Queen.

Messrs. Allwood Bros. put up a small collection of perpetual-flowering Carnations, together with their hybrid Dianthus Sweet Wivelsfield, but the display was not up to their usual standard. A much better group of Carnations was set up by Messrs. C. Engelmann, Ltd., who arranged Canadian Pink, Topsy, Blanche, Laddie, Saffron, White Pearl and several other good sorts with charming effect.

In the centre of the hall, Messrs. R. C. Notcutt staged an interesting bank of shrubs, including several forms of Buddleia variabilis, fruiting branches of Cornus alternifolia, Viburnum orientalis and Pyrus cathayensis, together with such late-flowering shrubs as Potentilla fruticosa var. Farreri, Hypericum patulum var. grandiflorum, Cornus paucinervis, Cytisus nigricans, Perowskia atriplicifolia, Spiraea Douglassii, Hydrangea paniculata var. grandiflora and Romneya hybrida.

Messrs. Hollamby's Nurseries arranged ornamental and well-flowered plants of Clematis varieties in association with heavily-fruited pot plants of Pyracantha coccinea and its variety Lelandii, the fruits of which were richly coloured and associated well with the Clematises.

Joint Dahlia Committee.

Present: Mr. H. B. May (in the chair), Mr. J. Cheal, Mr. J. Emberson, Mr. J. B. Riding, Mr. A. E. Vasey and Mr. D. B. Crane.

This Committee recommended three large-flowered Decorative sorts, all of which were shown by Messrs. J. Stredwick and Son, for trial at Wisley. The varieties so honoured were Daily Mail, with large, curled petals, yellow, shaded with orange; Charles A., glowing scarlet, tinged with orange in the centre, the petals being tipped with white, and Magician, with curled, rich primrose-yellow, white-tipped petals, the outer ones being lightly shaded with orange.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair). Mr. W. H. Divers, Mr. J. C. Allgrove, Mr. H. Markham, Mr. E. Beckett, Mr. J. Wilson, Mr. J. Cheal, Mr. T. Pateman and Mr. A. N. Rawes, Secretary.

Several interesting novelties were submitted to this Committee, which recommended two seedling Plums for trial at Wisley. These were Plum Black Prince (Kentish Black Diamond × Bradley's King Damson), with dark purple fruits, richly flavoured and of medium size, and thickly covered with "bloom," shown by Messrs. Laxton Bros., and a seedling of Victoria Plum, with enormous fruits richly coloured with red over a greenish-yellow ground, shown by A. Worsley, Esq., Mandeville House, Isleworth.

Mr. J. C. Allgrove exhibited an interesting fruit which was half Nectarine and half Peach, on a tree of Peach Peregrine.

Groups.

An interesting collection of dishes and baskets of Apples was set up by Messrs. S. Spooner and Sons, and included good fruits of Lady Sudeley, Worcester Pearmain, Langley Pippin, Grenadier, Lord Suffield, Red Victoria, Hunt's Early and Lord Grosvenor. They also had fruiting sprays and a dish of excellent fruits of Blackberry Theodore Reimers. Messrs. Daniels Bros., Ltd., showed sprays and chip baskets of their well-known late Black Currant, Daniels' September.

ELGIN.

August 21 and 22.—In no county of the British Isles is the cult of gardening more enthusiastically engaged in than in the fair land of Morayshire, aptly termed the "garden of Scotland." Rich and poor alike all vie in the cultivation of flowers, with the result that the premier show of the county staged by the Elgin Horticultural Society is invariably one of the finest floral events in Scotland. The quality and deep, rich colouring of the exhibits can be bettered nowhere. Of course, Morayshire has a fine climate.

Under the able guidance of Mr. T. L. Mann, this annual event is becoming better and better as the years roll on. He is the scion of an old and highly esteemed gardening family, and his knowledge of everything pertaining to horticulture makes him an ideal Secretary. The Hon. James Stuart, M.P. for Moray and Nairn, opened the show, while the Duchess of Richmond and Gordon added *éclat* to the proceedings by presenting the leading prizes. These included a Silver Rose Bowl for most points in Sweet Peas, Mr. James Macintosh, Aberdeen; Silver Cup for most points in the professional classes, Mr. J. M. Annand, Brodie Castle Gardens; Silver Cup, for most points in amateur classes, Mr. J. McGillivray, Newton Road, Elgin; Silver Medal, for best vase of Sweet Peas in the show, Mr. A. S. Dow, Darnaway Castle Gardens; the Society's award for the best exhibit at the show (confined to members), Mr. T. L.

Mann; and Silver Cup for the best garden of municipal houses, Mr. Charles Petrie, Maisondieu, Elgin.

Pot Plants.

This section, professional and amateur, proved exceedingly good, The Brodie of Brodie (gr. Mr. J. Annand), Brodie Castle, had a fine entry of Adiantums. Begonias (single) were best shown by Mr. Ian K. Thomson (gr. Mr. J. Ferguson), Burgie House, while Mr. Herbert C. Bilby (gr. Mr. J. Short), Blackfriars Haugh, had the finest doubles. The Asylum Gardens (gr. Mr. J. McLaren), while taking only one first (Hydrangeas), had a good place in most of the other classes.

Cut Flowers.

Brodie Castle Gardens provided some excellent specimens of perennials, annuals and Chrysanthemums. Burgie House led for Stocks, Pelargoniums, Cactus Dahlias, Asters and cluster Roses. Darnaway Castle Gardens had the best Antirrhinums and Blackfriars Haugh led finely for Dahlias, Carnations and Roses.

Sweet Peas.

The Sweet Pea section gave unfeigned pleasure to the many visitors, including, as it did, exquisite specimens of this favourite flower. For the best twelve vases, distinct varieties, the honours went to Darnaway Castle, and also for pink and purple varieties. Cairnfield Gardens (Buckie) were best for scarlet, one vase Sweet Peas any other variety, and one vase of a novelty for 1929. Mr. James Macintosh, Rosefield Cottage, Aberdeen, took leading places for three vases of Sweet Peas, distinct, one vase lavender, and one vase white.

Fruits.

Nothing finer has ever been seen at Elgin than the fruit display this year. That doyen of northern gardeners, Mr. Charles Webster, Gordon Castle Gardens, who has been a judge more times than he can remember in such matters, declared that the display was one of the finest he had ever seen, and one that even the Edinburgh show, noted for its fruit display, could not better.

Darnaway Castle Gardens (gr. Mr. A. S. Dow), romped home in fine style for Apples, dessert and baking; Pears, Red Currants, Raspberries, and the best collection of hardy fruits. Mr. F. J. Tennant, Innes House (gr. Mr. John Nicoll) led for Grapes, and Mr. A. A. Dunbar Brander, for Nectarines. Burgie House, Forres, had remarkably fine winning displays of Gooseberries (green or white), Gooseberries (red), and Black Currants. Mr. J. Grant, High Street, Elgin, led for Plums, with remarkably fresh and clean-grown specimens, with the produce of Darnaway Castle Gardens and Brodie Castle Gardens following close behind. The Glen of Rothes (gr. Mr. W. Logan) sent the best Strawberries; Blackfriars Haugh Gardens (gr. Mr. J. Short) led for Loganberries. This section was an outstanding feature.

Vegetables.

They can grow vegetables in Morayshire, and nowhere better than in Brodie Castle Gardens (gr. Mr. J. Annand). The produce from here carried off premier honours for the best collection of vegetables, Potatos (kidney), Turnips, Beet (globe), Parsnips, Celery and Cucumbers. Burgie House (gr. Mr. J. Ferguson) led for the best collection of Potatos (four varieties); round, white Potatos; Broad Beans, and Peas. Glen of Rothes secured premier places for Shallots, Beet (globe), Cauliflowers and Cabbages. Innes House sent the best Onions and Vegetable Marrows. Generally, it was a capital display, and reflected great credit on all concerned.

Trade Displays.

Trade exhibits were well to the fore, Messrs. Allwood Bros., Haywards Heath, Sussex; Messrs. Austin and McAslan, Glasgow, and Mr. T. L. Mann, florist, Elgin, had exquisite displays. Mr. J. G. White, Aberlour Orphanage, showed specimen Begonias in fine condition. Seldom, indeed, have Begonia blooms been seen in such perfect condition.

ROYAL SCOTTISH ARBORICULTURAL.

(Northern Branch.)

The annual meeting of the members of this branch was held in Inverness, the headquarters of the Society, with Mr. Gilbert Brown, Vice-President, in the chair. Mr. David Ross, Secretary, gave a resumé of the past year's work, which showed the finances in a very satisfactory state. His remarks included warm praise for the tree-felling competition held under the auspices of the branch, the details and result of which were given in *The Gardeners' Chronicle*. Eight counties entered the competition, sending eighteen teams. The first of its kind, the results were so satisfactory that the branch determined to arrange another felling competition. The election of office-bearers followed, when the Chairman proposed that Colonel Neil Fraser-Tytler, of Aldourie, be re-appointed President, which was heartily agreed to. Mr. Gilbert Brown and Mr. Frank Sime were re-elected Vice-Presidents. The following were appointed as the Executive Committee:—Mr. Alex. Fraser, forester, Brahan; Mr. George E. Johnston, factor, Novar; Major Scott, Forestry Commission, Inverness; Mr. Singer, Fairburn, Muir of Ord; Mr. Home, Forestry Commission, Fort-Augustus; Mr. Anderson, Inverfarigaig; Mr. Macdonald, Redcastle; and Mr. H. C. Noble, factor, Contin, Strathpeffer.. The following members were added:—Mr. Matthew Feaks, Darnaway; Mr. William Breingan, Aldourie; Captain Macintosh, Kyllachy; and Mr. Murdo Ross, Allangrange. The members resolved to visit Cawdor Woods on Saturday, August 31, having received a letter from Colonel Baillie saying he would be very pleased to show the members over the policies of Cawdor.

READING GARDENERS'.

The final evening meeting of the summer session was held by the kind permission of Mr. H. C. Sutton at Benham Park, Newbury, on the evening of August 19, when between sixty and seventy members availed themselves of the opportunity of inspecting the extensive gardens and grounds of this charming Berkshire seat.

On arrival, the party was welcomed by Mr. Smith, the gardener, who at once conducted the visitors through the houses. Space will only permit of noting some of the principal features. In the vineries (six houses) there were excellent crops of Black Hamburgh, Madresfield Court, Lady Downe's and Muscat of Alexandria Grapes; while in the five houses devoted to Peaches and Nectarines, although several varieties had already been gathered, there were heavy crops of Bellegarde and Dymond.

In the Fig house there is only one tree, but its growths filled the entire structure. It was planted in 1866, the year in which the late Sir Richard Sutton won the Derby with Lord Lyon. Tomatos were a heavy crop, the variety grown being Best of All. Carnations were excellent, the most noticeable varieties being Topsy, White Pearl, Scarlet Carola, Countess of Lathom and A. J. Cobb. In the plant houses, Statice, Browalias, Crotons, Lilies, Phloxes and Salpiglossis made a bright show; there was also a fine batch of Begonia Gloire de Lorraine.

The herbaceous borders, although past their best, contained a large variety of plants still flowering well, notably Phloxes, Verbascums, Salvias and Monarda didyma.

Apples were a fair crop, while Pears, Peaches, Plums and Morello Cherries were excellent.

A walk through the park brought the party to the mansion, where the Italian and Terrace gardens attracted much attention. From the top terrace, which was confined chiefly to Roses, magnificent views were obtained, particularly across the valley to Beacon Hill, Highcliffe. The Yew hedges are quite a feature of this part of the gardens. A pleasant ramble by the lake (sixteen acres) brought to a close one of the most enjoyable evening meetings yet held by the Association.

Before separating, a hearty vote of thanks was tendered to Mr. Sutton for his courtesy in throwing open his gardens and grounds to the members, and to Mr. Smith for the interest he had taken in the visit. Congratulations were also given him for the splendid upkeep of the gardens.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held at the R.H.S. Hall, on Monday, August 12, Mr. Charles H. Curtis presiding. Seven new members were elected. Two members withdrew the sum of £57 15s. 4d. from their deposit accounts, and £169 5s. 6d. was passed for payment to the nominees of four deceased members. Sick-pay on the Ordinary side amounted to £77 9s. 8d., and in the State Section to £65 10s. 4d.; and maternity benefits totalled £5. Grants to the amount of £34 6s. 6d. were made to eight members towards dental and surgical treatment, and several other cases were considered.

Obituary.

Conway Jones.—Through the recent death of Mr. Conway Jones, at the advanced age of eighty-three, Gloucester has lost one of its noted citizens, and a great amateur Rosarian has gone to his rest. Outside the city in which he was born and bred it was as a grower and exhibitor of Roses that Mr. Conway Jones was best known, and in this respect he was pre-eminent, winning, among many other trophies, the National Rose Society's Amateur Champion Challenge Trophy with the Gold Medal of the Society. It was in the 'nineties that Mr. Jones commenced to show Roses from less than a hundred trees, in the days of the Gloucester Rose Society, of which he was Chairman of Committee, but he was enterprising and ambitious, and by the time he reached the zenith of his fame, about 1900, his stock probably exceeded 10,000 plants. In 1895, the National Rose Society held its Provincial Show at Gloucester, when Mr. Jones upheld the reputation of his native city by winning a number of the leading prizes. Mr. Conway Jones was essentially a man of varied activities; in addition to being a keen man of business, a city councillor for some years, and a great Rose-grower, he was a keen angler, a popular member of the Masonic craft, and in the hard winter of 1890-91 he performed the feat, never since repeated, of riding his tricycle for a considerable distance on the frozen Severn outside Gloucester. Owing to ill-health, the genial presence of Mr. Jones has been missed in the city for some time past, and his passing marks the end of a man who really loved Roses, and knew how to grow them.

Theodor Gronenberg.—We learn from the German horticultural press of the death on July 27 of Theodor Gronenberg, at Memel, East Prussia. Born in 1863, at Lindnau, after the completion of his general education and a short training in horticulture, he proceeded to Berlin to perfect himself in nursery work. He obtained a position in the gardens of Potsdam Palace, where he stayed three years or so, and after some further experience, in 1896 he was able to fulfil his ambition by buying a small nursery establishment of his own, in Memel. With the aid of his wife, and by dint of strenuous work, he increased the size and importance of the nursery very considerably, but the war of 1914-18 brought troublous times and the business subsequently suffered severely by the partition of East Prussia. However, by the efforts of himself and his son, who took over the business and had latterly carried it on, the difficulties were surmounted and successfully overcome. Herr Gronenberg will, perhaps, be best remembered by the prominent part he took in organising the growers in East Prussia, and he was always a welcome guest at their re-unions.

Camille Potrat.—We regret to hear of the death on July 24, at the age of fifty-nine, of M. Camille Potrat, a prominent official in the horticultural service of the Paris municipality, and also a Professor of the Horticultural College of Saint-Mandé (Seine). He took a keen interest in all matters pertaining to his profession, and was a Vice-President of the Old Scholars' Association of the Versailles Horticultural College, and of the French Gardeners' Association; he had the distinction of having been created Commandeur du Mérite Agricole and Officier de l'Instruction Publique. His special study was that of kitchen garden cultivation, but he had a very complete knowledge of horticulture as a whole, and had, indeed, been appointed, soon after the completion of his studies at Versailles, gardener to Prince Murat. He was an industrious writer on horticultural subjects, and besides contributing to the press, had written two books, on vegetable culture and on Melon-growing, respectively.

William Edward Slora.—Keen regret will be felt among his many friends by the death of Mr. William Edward Slora, which took place at his residence, Deemount Road, Aberdeen, on Wednesday, August 21. One of the best and most widely-known gardeners and florists in and around Aberdeen, Mr. Slora was trained by his father, also an expert gardener, on the Bloomfield Nurseries, situated then on the outskirts of Aberdeen. When only twenty-five years of age the deceased started out on his own, and for the past forty years has occupied an important place in his profession. Exceptionally well-skilled in laying out golf courses, Mr. Slora was responsible for the three best courses in Aberdeen—Balgownie, Balnagask and Hazlehead—besides many other important undertakings. Unfortunately, during the past five years, Mr. Slora was incapacitated through ill health, his place being filled by a son who has been associated with him in the business. Deceased was sixty-five years of age; he was an ardent admirer of Robert Burns, and leaves a widow, two sons and eight daughters.

ANSWERS TO CORRESPONDENTS.

Apple Foliage Unhealthy.—*L. P.* The Apple leaves show symptoms of leaf-scorch, which is of a physiological nature and arises usually from a deficiency of potash in the food of the plant. The problem is a very complex one, but it is found in most cases that potash manures tend to reduce the amount of scorch. Dress the ground beneath the trees in autumn with sulphate of potash, previously satisfying yourself that the drainage is satisfactory.

Turf in Bad Condition.—*A. P.* The dead patches on your lawn are, in our opinion, due to burning, and there may be various reasons which may account for this, *i.e.*, a leakage of petrol from the mower or roller, applying a fertilizer carelessly in dry weather, and dogs. The condition of the turf submitted is consistent with any one of these reasons. The fibre is quite healthy, but the grass appears to have been scorched, and it is evident the brown patches are the result of some injurious matter applied to the surface. The fact that dogs are let loose on the lawn every morning (particularly females) during this prolonged spell of drought, inclines us to believe that the dogs are responsible for the brown patches. We would suggest a dressing with a fumigant (Terrafumite) well watered in. The fumes of this material will keep the dogs away. Later, scarify the brown patches and, if necessary, add a little loam and sow fine grass seeds. Keep the patches moist until germination takes place. We would also suggest that you discontinue using a five-ton roller. A four-cwt. roller is, in our opinion, of sufficient weight for any lawn, and particularly so on a clay soil.

Communications Received.—W. A.—F. C.—W. F. S.—S. A.—L. B. C.—H. H. C.—R. H. T. W.—J. E. P.—C. S.—W. H.—W. D.

TRADE NOTE.

We learn that Mr. W. A. Constable, formerly with Messrs. W. F. Gullick, Salisbury, and for many years with Messrs. R. Wallace and Co., has started business as a specialist in Lilies and rare bulbs, at Commercial Road, Paddock Wood, Kent.

MARKETS.

COVENT GARDEN, Tuesday, August 27, 1929.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums	18 0–24 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0

	s. d. s. d.
Hydrangea paniculata ...	18 0–24 0
Lilium longiflorum, per doz.	18 0–24 0
—speciosum rubrum, per doz.	18 0–36 0
Marguerites, white, per doz.	9 0–12 0
Nephrolepis, in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small ,, ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Roses, Polyantha, per doz. ...	15 0–18 0

Cut Flowers, etc: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	8 0—9 0
—cuneatum, per doz. bun. ...	5 0—6 0
Asparagus plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short ,,	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. ,, ...	1 6—2 0
—short ,, ...	0 9—1 0
Asters, white, per doz. bun.	3 0—6 0
—mauve, per doz. bun. ...	3 0—6 0
—pink, per doz. bun.... ...	3 0—6 0
Carnations, per doz. blooms	1 6—3 6
Chrysanthemums, bronze, per doz. blooms	2 0—3 0
—white, per doz. blooms ...	3 0—6 0
—yellow, per doz. blooms	3 0 6 0
—pink, per doz. blooms ...	3 0—5 0
—bronze, sprays, per doz. bun.	6 0—9 0
—white, sprays, per doz. bun.	6 0—9 0
—yellow, sprays, per doz. bun.	9 0–10 0
—pink, sprays, per doz. bun.	8 0—9 0
Clarkias, per doz. bun.... ...	5 0—6 0
Coreopsis, per doz. bun. ...	1 6—2 0
Cornflowers, blue, per doz. bun.	1 6 2 0
Croton leaves, per doz. ...	1 9—2 6
Delphinium, blue, per doz. bun.	5 0—6 0
Ferns, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	9 0–10 0
Gaillardia, per doz. bun. ...	2 0—2 6
Gladiolus, large vars., white, per doz. spikes	1 6—2 6
—yellow ,,	2 0—2 6
—pink ,,	1 6—2 6
—mauve ,,	2 0—2 6
—scarlet ,,	1 6—2 0
—primulinus ,,	0 9—1 6
Gypsophila paniculata, double, per doz. bun.	12 0–15 0

	s. d. s. d.
Heather, white, per doz. bun.	6 0—8 0
Larkspur, mauve and pink, per doz. bun. ...	4 0—5 0
Lilium longiflorum, long, per bun. ...	1 6—2 6
— — short, per doz. blooms	2 0—2 6
—speciosum album, long, per doz. ...	3 0—4 0
— — — short, per doz. ...	2 6—3 0
—auratum, per doz. blooms	5 0—6 0
Lily-of-the-Valley, per doz. bun.	24 0–30 0
Marigolds, per doz. bun. ...	2 6—3 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0–42 0
Physalis, per doz. bun. ...	12 0–24 0
Roses, per doz. blooms—	
—Columbia ...	2 0—3 0
—Richmond ...	1 6—2 6
—Yellow ...	1 6—2 6
—Molly Crawford ...	1 6—2 6
—Butterfly ...	1 6—2 6
Scabiosa caucasica, per doz. bun. ...	3 0—5 0
Smilax, per doz. trails ...	4 0—5 0
Statice, mauve, per doz. bun.	4 0—8 0
—white, per doz. bun.... ...	5 0—8 0
—yellow, per doz. bun. ...	5 0—8 0
—incana, per doz. bun. ...	9 0–10 0
—latifolia, per doz. bun. ...	8 0—9 0
Stock, double white, per doz. bun.... ...	5 0—6 0
—double pink, per doz. bun.	6 0—8 0
—mauve, per doz. bun. ...	6 0—8 0
Sweet Peas, various, per doz. bun.... ...	5 0—7 0
Sweet Sultans, white, per doz. bun. ...	2 0—3 0
—mauve, per doz. bun. ...	2 0—3 0
—yellow, per doz. bun. ...	3 6—4 0
Zinnias, per doz. blooms ...	1 0—3 0

Remarks.—In this department, the requirements during August are usually very erratic and supplies generally are more than sufficient for the demand. Prices during the past week have not shown any improvement. Carnations show no change, but good Roses are less plentiful, especially red blooms. Chrysanthemums, both disbudded blooms and sprays, are still on the increase, but larger quantities have been moved during the past week; sprays have been greatly welcomed. There is a glut of Asters at the present time, but good Stocks are very scarce. Gypsophila paniculata flore pleno is very scarce. The latest arrival in this department is Physalis, in fine condition.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Worcester Pearmain—	
—Specials ...	6 0—8 0
—Best	4 0—5 0
—Beauty of Bath, per ½ bushel—	
—Specials ...	6 0—8 0
—Best	3 0—4 0
—Lord Derby	4 0—6 0
—Grenadier, per bushel ...	4 0—6 0
—Warner's King, per bushel ...	4 0—6 0
—Early Victoria, per bushel ...	2 0—4 0
—Australian—	
—Granny Smith	18 0–25 0
—Tasmanian—	
—Granny Smith	20 0–25 0
Bananas, per bun.... ...	17 0–27 6
Cherries, Morello, per lb. ...	0 6—0 9
Currants, Black, per lb. ...	0 4—0 6
—Red, per lb....	0 3—0 6
Gages, Spanish—	
—3 tapes ...	12 0–16 0
—2 tapes ...	9 0–11 0
—1 tape ...	5 0—6 0

	s. d. s. d.
Grapes, English—	
—Muscat ...	1 0—4 0
—Canon Hall ...	2 0—5 0
—Black Hamburgh, per lb.	1 0—2 0
Grape Fruits ...	30 0–35 0
Lemons, per case—	
—Messina ...	20 0–25 0
—Naples ...	20 0–30 0
Melons, each ...	2 0—3 0
Nectarines, per doz.	6 0–12 0
Nuts, Filberts, per lb. ...	0 2—0 2½
—Cobs, per lb.	0 4—0 5
Oranges—	
—Denia ...	20 0–27 0
—Mercia ...	20 0–27 0
Peaches, per doz. ...	4 0–12 0
Pears—	
—French, per crate ...	5 0—7 0
Pineapples, case	21 0–36 0
Plums, English—	
—Belle Louvain, ½-sieve ...	4 0—6 0
—Victoria ...	8 0–12 0
—Czar, ½-sieve	2 6—3 6
—Prince of Wales, ½-sieve	4 0—6 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, Runner, per bushel ...	6 0—7 0
—French, per ½-bushel ...	2 6—3 0
—Guernsey, per lb.	0 4—0 6
—Worthing, finest, per lb.	0 4—0 6
Beet, per bushel	4 0—5 0
Cabbage, per doz.	0 9—1 0
Carrots, per ½-bag, washed	2 6—3 6
Cauliflowers, flat, 6's, 9's, 12's...	2 0—3 0
Endive, French, per crate, 18's and 24's ...	6 0—7 6
Lettuce, Cabbage, 24's	1 6—3 0
—Cos, per box, 20's	2 6—3 0

	s. d. s. d.
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	1 9—2 6
—broilers ...	1 6—1 9
Parsnips, per cwt. ...	4 0—5 0
Peas, per bag...	2 6—4 6
Potatos, cwt. ...	2 6—5 0
Tomatos, English, per box of 12 lbs.—	
—pink... ...	2 6—4 0
—pink and white	2 6—4 0
—white ...	2 6—3 0
—blue ...	1 6—2 0
—Guernsey ...	— 2 6
—Dutch ...	2 6—3 0
Turnips, per doz. bun. ...	4 0—6 0

Remarks.—Business has not been active during the past week. Quantities all round are unusually heavy and generally produce has gone out fairly well, but values, in most instances, are lower. In the hothouse Grapes section business is slow, and the demand for the choicer fruits is not good. Plums are comparatively cheap; the quantities of Czar that have been marketed are on a record scale. Victorias are coming along quickly and values are easier. There are heavy supplies of English Apples on the market, but the proportion of really good-class fruits is small. Second grade Apples, both dessert and culinary varieties, are not selling well. There are increasing quantities of Pears available and on the whole they are cheap. Cucumbers are a really bad trade, and even low prices do not encourage sales. Tomatos are easier all round, quantities being heavy and the demand poor. Mushrooms are a steady trade, with stable values. Salads are variable and in small demand. Green vegetables are meeting but poor support from buyers, and Potatos at the moment are in excess of demand.

GLASGOW.

While cut flowers generally continued cheap last week, Chrysanthemums, which are now arriving in larger quantities, realised satisfactory prices. Selected disbudded blooms were worth 5s. per dozen; Mary Colville and Bronze Early Buttercup, 2s. 6d. for 6's; White Countess, 1s. to 2s. 3d.; Mercedes, 1s. 6d. to 2s.; Holicot Bronze, 1s. 3d. to 1s. 9d.; Holicot Yellow, 1s. to 1s. 9d.; Elsie Headie and Sanctity, 1s. to 1s. 6d.; Phoenix, 10d. to 1s. 6d. for 12's, and sprays, 3d. to 1s. each. Gladioli were again slow to move at prices ranging from 6d. to 3s. per dozen. Carnations fluctuated between 1s. and 1s. 9d. per dozen; pink Roses, 1s. 9d. to 3s.; red, 1s. 6d. to 2s. 6d.; white and yellow, 1s. to 2s.; Richardias, 2s. to 3s. per bunch; Statice, 5d. to 8d.; Sweet Peas, 1d. to 6d.; Dahlias, 5d. to 6d.; Stocks, 3d. to 6d.; Asters, Marguerites and Calendula, 2d. to 3d.; Nigella, 3d.; Smilax, 1s. to 2s.; Asparagus, short, 4d. to 6d.; medium, 9d. to 1s. 3d.; and trails, 1s. 6d. to 3s.

Business in the fruit market was fairly active. Strawberries realised 10d. to 1s. 4d. per lb.; Raspberries, 2s. 6d. per sieve (12 lbs.); Czar and Early Rivers, 2s. to 3s. 6d.; special, 5d. per lb.; Victoria (Middlesex), 6d. to 9d.; home-grown Melons, 3s. 6d. each; Pineapples, 4s.; Canteloupes, 9d. to 1s. 6d.; Peaches, 5s. to 12s. per dozen; cooking Apples, 2s. to 3s. per sieve; American Apples (Gravenstein), 17s. to 20s. per case; Beurré Hardy Pears, 28s. to 29s.; Grape Fruits, 26s. and Oranges, 15s. to 22s.

Tomatos declined to 4d. and 5d. per lb.; Cauliflowers and Cucumbers made 2s. to 4s. per dozen; Lettuces, 1s.; French Beans, 3d. to 4d.; Marrows 6d. to 8d.; and Mushrooms, 2s. per lb.

THE
Gardeners' Chronicle
No. 2,228.—*SATURDAY, SEPTEMBER* 7, 1929.

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Coloured Supplement Plate.

Dendrobium Thwaitesiae, Veitch's var.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 58·3°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, September 4, 10 a.m. (Greenwich time). Bar. 30. Temp. 70°. Weather, fine.

The "Cut Flower" Garden.

Gardeners pure and simple, and most are one if not the other, grow plants for the sake of seeing them grow. Achievement—although not to be despised—is less to them than the exercise of their art. To such the laying on of hands in the garden is to be resented, fiercely or morosely, according to temperament, and hence it comes that we gardeners sometimes get a truly undeserved reputation for being difficult. As, for example, when we fail to be pleased that a plant brought after much trouble to florescence disappears in the day of its prime to bedeck the dining or drawing room. If only "they" had taken something else—no matter what—we should not have repined, but this, the Apple of our eye! It is too much. Of course, there are stoics among gardeners who can witness the cutting off of their nearest and dearest plants in their prime without a murmur. They cheerfully surrender all the work of their hands for the good of the household, and are rightly held in much esteem. But we more sensitive souls who cannot acquire such indifference or callousness, how are we to save ourselves from loss of plants and loss of temper? Wife and child are dear to us; our domestics have our esteemed consideration, but our flowers are precious also, and the garden which we have been making all these years must have some protection from the ruthless "picking for the house." In large, well-ordered places, all things are provided for, and out of the plentitude of floral and leafy production the needs of the household are easily and smoothly met—or, at all events, they should be. But in the smaller garden, with many indoor devotees of flowers, and particularly in the garden in the making, the cut flower problem is a serious one. In the early days, of course, it does not arise. There is nothing to cut, and all the gardener has to bear is advice on how a garden should be planted in order to yield plenty of flowers, fruits and vegetables at all seasons, and particularly in mid-winter, when such things cost so much to buy. Then later, his day of triumph comes, and the garden is suddenly a garden. That is the dangerous age. The shrubs and trees still require nursing if they are to become fine specimens, and yet in all innocence, of course, they become a lure to the garden depredator intent on house decoration. The wise gardener, of course, anticipates these troubles, and by anticipating, ends them. He creates a "cut flower" garden wherein the household may make free, and in exchange exacts an undertaking that anything elsewhere that may be required may be had only by the asking of himself. The agreement may be honoured, but there is always the difficulty that we want that which we may not have. In any case, the scheme is worth trying, and we ourselves have known it to meet with partial success. The making of such a garden is, moveover, an interesting work. There must be plenty of foliage for spring, summer and autumn effects, and, of course, there must be plenty of flowers in endless succession. Perennials must form the framework and annuals fill the interstices. There are all sorts of curious facts to be gleaned in such a garden. What flowers last longest when cut? How may the life of cut Poppies and the like be prolonged? What colours harmonise best with the rather feverish electric light so often used nowadays? Unfortunately, so popular have flowers become that it needs a large cut flower garden to supply a small household. Seasons will, moreover, play unkind pranks in these and in all other gardens, but the better the gardener the more powerless are the seasons—the garden fates—to embarrass him. Beside the fresh flowers, the cut flower garden should provide large supplies of "Immortelles"—Helichrysums, Acrocliniums, Statice, Eryngiums and Echinops, for the making of bouquets for winter decoration; herbs and Roses for pot-pourri; Lavender and Rosemary, and incense plants brought on indoors and planted out in shelters and warm places. It would, indeed, be worth someone's while to write a brochure on the cut flower garden. If well done it would win much gratitude, both for the member of the household who looks after indoor floral decoration, and the member who takes charge of the garden itself. Although, nowadays, we are all gardeners, our objectives are not all identical. Some love the garden as a source of supply and some love it for its own sake. The cut flower garden might help to bridge the gulf between them.

Our Coloured Supplement Plate.—Probably no hybrid Dendrobium is more richly coloured than D. Thwaitesiae, a hybrid raised many years ago by Mr. Richard Thwaites by crossing D. Ainsworthii var. splendidissimum grandiflorum with D. Wiganiae. Several forms of this brilliantly coloured hybrid have appeared, but that known as Veitch's var. is certainly one of the best. It is this form that is depicted in the Coloured Supplement Plate presented with this issue, and the flowering stem figured represents one of many shown by the late J. J. Bolton, Esq., of Claygate Lodge, Claygate, Surrey, whose collection of fine Orchids was cultivated so splendidly by Mr. S. Lyne.

John Cypher Memorial.—Our readers will remember that letters have appeared in this journal from November 24, 1928, onwards, suggesting that a fund should be raised for the purpose of providing a permanent memorial in memory of the late Mr. John Cypher, V.M.H. The idea of such a memorial originated with a few exhibitors who had been in many ways and places associated with Mr. J. Cypher, who was one of the foremost competitive exhibitors of modern times, especially of Orchids, stove and greenhouse plants, and artistically arranged groups. The letters referred to did not bring the response anticipated, and the many friends of Mr. Cypher felt that the memorial fund should be launched at some important gathering of horticulturists. Chelsea Show offered no opportunity; moreover, the atmosphere was not congenial to the product, as Chelsea is a non-competitive exhibition. Shrewsbury also did not afford an opportunity, and it was left to the large and important gathering in the Town Hall on the eve of the Southport Show to launch the scheme. The Mayor of Southport and the Show Committee provided the necessary opportunity for Mr. C. H. Curtis to set forth the views already expressed by Sir Jeremiah Colman, Bart., Mr. N. F. Barnes, Mr. F. Jordan, Mr. R. Greenfield, Mr. Allan Falconer and others; he asked that if those present were in agreement with the general principle of a memorial, a Committee should be formed to materialise it. Mr. Alderman Wood, Chairman of the Southport Show, expressed approval of the scheme, and stated that his Committee would donate £25 to the fund. After Mr. Barnes and others had spoken, a Committee was appointed as follows: Mr. N. F. Barnes, Eaton Gardens, Chester; Mr. H. E. Alexander, Westonbirt, Tetbury; Mr. J. S. Brunton, *Horticultural Trades' Journal*, Burnley; Mr. N. J. Macself, *Amateur Gardening*, 148, 149, Aldersgate Street, London, E. C.; Mr. David Cuthbertson, of Messrs. Dobbie and Co., Edinburgh; Mr. R. F. Felton, Hanover Square, London, W.; Mr. Robert Greenfield, c/o Messrs. John Peed and Son, West Norwood; a representative from the Southport Show Committee; a representative from the Shropshire Horticultural Society; a representative from the Royal Caledonian Horticultural Society; a representative from the Glasgow Show; and Mr. Thomas Hay, representing the Royal Horticultural Society; with Mr. Charles H. Curtis, Managing Editor of *The Gardeners' Chronicle*, as Hon. Secretary and Treasurer, to whom, at 5, Tavistock Street, Covent Garden, W.C., subscriptions should be sent. Mr. Curtis's appeal for donations met with a ready response at Southport, where a total of about £117 was promised, in amounts ranging from 4s. to £25. We hope to publish a list of donations in our next issue; meantime, every subscription, however small, will be acknowledged through the post. The exact form the John Cypher Memorial will take will be determined by the Memorial Committee in accordance with the amount received and after due consideration of the views expressed by subscribers.

Elm Disease in Germany.—The Elm disease which has attacked and killed so many fine street and park trees in Holland and England during the past few years has found its way to Germany, where two forms of the disease, the acute and the chronic, have made their unwelcome appearance. The result in each case is the same, that the tree perishes, the difference being only in the time taken for the disease to have its fatal effect. It is remarked that up to the present, only trees in the streets and parks have been attacked, those in woodlands and coppices appearing free from the disease.

"A Tentative List of Tulip Names."—The publication of *A Tentative List of Tulip Names* is a step towards the fulfilment of a long-felt want among horticulturists in general, and Tulip-lovers in particular, for it is a preliminary attempt to unravel the confusion of nomenclature which now exists among Tulips, and will, therefore, be welcomed by the great bulb-loving community, while it should prove of special value to bulb dealers. This direct attempt to stabilise Tulip nomenclature is the outcome of the work of the Tulip Nomenclature Committee, on which both British and Dutch growers are represented. It is to the General Bulb Growers' Society of Haarlem that the Royal Horticultural Society, and Tulip-growers in general, primarily are indebted for the production of the present list, as this Society kindly undertook the preparation of a provisional list of names, to act as a basis upon which the Nomenclature Committee could work; this list had as its foundation the classification and list of names given in the Report of the Tulip Nomenclature Committee, 1914-1915, but since that Report two new classes have come into existence, namely, "Mendel" Tulips and "Triumph" Tulips. As many cases of synonymity are suspected in these two groups, which can only be cleared up after a series of trials, it has been deemed advisable to omit from the present publication the names of Tulips belonging to these new groups. Therefore, they are not included in *A Tentative List of Tulip Names*, which is published by the R.H.S. at a nominal price of 1s. 3d. post free.

British Mycological Society.—The thirty-third Autumn Fungus Foray and General Meeting of this Society will be held at Bristol from Monday, September 30, to Saturday, October 5. Accommodation is available at the Elmdale Hotel (15s. per day), and the Lyndale Hotel (12s. 6d. per day), but members are advised to book their rooms at once. Applications should in each case be made to the Manager, mentioning the British Mycological Society, and stating whether a single or double room is required. The headquarters for the meetings and exhibits will be at the University and microscopes will be available. Members who intend to be present are particularly requested to inform the Secretary not later than Monday, September 23, and to state whether they wish to be included in the party visiting Long Ashton Research Station on Wednesday, October 2. The programme for the gathering is :—Monday, September 30: 8 p.m., Professor and Mrs. Darbishire invite members to coffee; 8.45 p.m., Council Meeting. Tuesday, October 1: Start from headquarters at 10 a.m., by chars-a-bancs to Cleve Combe, Ball Wood and Corporation Wood; tea probably at Wrington; 8.45 p.m., Annual General Meeting. Wednesday, October 2: It is hoped to arrange a visit to Long Ashton Research Station in conjunction with the visit of the Imperial Mycological Conference. Those who wish to join the party should inform the Secretary. Other members will visit Long Ashton Estate Woods; conveyance probably by chars-a-bancs; 8.45 p.m., Presidential Address entitled "Fungi Exotici; Past Work and Present Problems." Thursday, October 3: Start about 11 a.m. on a visit to Blaize Castle Woods; 8 p.m., Mr. Ramsbottom will deliver a popular open lecture, to the Bristol Naturalists' Society; the lecture entitled "The influence of Fungi on Life in General," will be given in the Museum lecture-theatre, by kind permission of Dr. Bolton. Friday, October 4: Start about 11.30 a.m. for Leigh Woods; 8.45 p.m., comments on the finds of the week by Mr. Carleton Rea.

Begonia Fields in Belgium.—Dutch horticulturists have long recognised the value of propaganda in attracting large numbers of tourists of all nationalities to see the wonderful fields of bulbs which are such a well-known and popular feature of the Dutch landscape in the spring. Begonia-growers in the Ghent district of Belgium are beginning to be aware that the Begonia fields present at least equal attractions to visitors, and are considering ways and means of undertaking some sort of joint publicity which will have the effect of attracting tourists to their nurseries. The initiative is being taken by the indefatigable Comte de Kerchove and already two excursions have been arranged, for September 8 and 15, to the principal Begonia nurseries. The journeys will be made by motor-car, and each party will be accompanied as guide, by a member of the organising committee.

Bagatelle Park, Paris.—In view of the fact that the fee for admission to the Royal Botanic Gardens, Kew, has lately been abolished, it is interesting to learn that the Paris park authorities have decided that for admission to Bagatelle Park, Paris—which has hitherto been open free to the public—a fee of two francs shall be payable on Mondays, Tuesdays, Wednesdays and Saturday mornings, and of five francs on Fridays. There will still be free entry on Thursdays, Sundays, public holidays and Saturday afternoons. Bagatelle, which was formerly a royal estate, is now the scene of the annual trials of new Roses, which are sent from a number of different European countries. English and Irish Roses are always well in evidence, and gain a good proportion of the awards.

Mr. D. MacGregor.—After twenty-five years' service, Mr. D. MacGregor has retired from his position as Superintendent of the Shanghai Municipal Parks and Gardens, and recently returned to Scotland. Mr. MacGregor has accomplished a wonderful task, for when he went to Shanghai gardening there was in its infancy, and the public parks embraced only a few acres; the many fine parks, recreation grounds and open spaces which Shanghai now possesses speak eloquently of Mr. MacGregor's skill as a designer and administrator. During his period of office he was responsible for the introduction and acclimatization of many plants which are now commonly grown out there; this work being conducted in the Park Nurseries, which embrace about forty acres, and were designed by Mr. MacGregor; twelve acres of this area were laid out as an experimental ground for the study of the cultivation of farm and garden crops under local conditions, and the selection of suitable types was carried out to the benefit of the agricultural and horticultural community. Many were the expressions of appreciation and good fellowship which marked Mr. Mac Gregor's retirement from the post which he had filled so admirably. Before leaving Shanghai, he was presented with one of the special medals struck to commemorate the funeral of Dr. Sun Yat Sen, First President of the Republic of China, in recognition of his services in connection with the designing of Memorial Park, Nanking, which embraces about 10,000 acres; he was also presented with a silver shield by his colleagues on the Memorial Parks Design Committee. Members of the Gardening Section of the British Women's Association at Shanghai presented Mr. MacGregor with an engraved antique bronze flower vase, while members of the Shanghai Horticultural Society, of which Mr. MacGregor was Hon. Director for twenty-four years—1905 to 1929—presented him with a handsome silver cup on an inscribed Blackwood stand. An account of Mr. D. MacGregor's horticultural career appeared in our issue of August 16, 1924 (p. 106).

MR. D. MACGREGOR.

London Gardens Guild's Exhibition.—The Exhibition of the London Gardens Guild, on August 30 and 31, was the first this Society has held in the R.H.S. Hall. The outstanding features of the display were corporate groups from horticultural societies and from municipalities in the London area. These, with some very fine trade groups, made a bright splash of colour. Of the displays set up by municipal authorities, that from Camberwell was awarded the first prize, with Bermondsey a very close second. In the corporate displays from local horticultural societies, Bermondsey and Camberwell were respectively first and second, both showing well-arranged groups of hardy herbaceous plants, with Lilium auratum as the *piece de résistance.* Other classes comprised children's displays from school gardens, in which class a Kensington school gained first prize; some very tastefully arranged bowls of flowers and foliage; groups staged by members of Post Office and other Civil Service horticultural societies, and five classes open only to persons residing within five miles of London Bridge. There were photographs of gardens which were awarded prizes in the 1929 Garden Championships, together with displays of flowers grown in them. On Saturday, August 31, there was a distribution of exhibition awards by Lady Seton, which included trophies won in the All London Gardens Championship and the cups awarded in the Brighter Petrol Station contest.

Importation of Fruit Stocks into United States.—The Ministry of Agriculture and Fisheries has been informed it has been decided that Mahaleb Cherry, Myrobalan Plum and other fruit stocks, such as Fig, Nut, Persimmon, etc., which have been imported hitherto in relatively small numbers, will be excluded from entry into the United States on and after July 1, 1931.

Forthcoming French Horticultural Exhibitions.—An exhibition of fruits of all kinds, Orchids, stove plants, Roses, Dahlias, and other garden products and features will be held at Clermont-Ferrand, France, from September 19 to 23. From October 3 to 7, there will take place at Grenoble an exhibition embracing horticulture, agriculture, forestry and biology. The show, which is being held under the auspices of the local authorities, will be in the new exhibition park and buildings created in 1925. The Haute-Vienne Horticultural Society is organising an exhibition of Chrysanthemums and other horticultural products, to be held at Limoges from October 19 to 24, for which the President of the Republic has promised to give a prize. At Lyons, the proprietors of the P.L.M. Railway are to organise, from November 7 to 9, a Forestry Congress, which will study particularly the question of carboniferous products from wood. The Ministry of Waters and Forests is taking part in the organisation of the Congress, which will be accompanied by an exhibition of industries connected with forestry.

The "Botanical Magazine."—The recently published Part I, Vol. CLIII (1927) of Curtis's *Botanical Magazine* contains coloured plates and descriptions of Crinodonna Corsii (t. 9,162), Picea omorika (t. 9,163), Eustephia Pamiana (t. 9,164), Rhododendron haematodes (t. 9,165), Primula vulgaris var. heterochroma (t. 9,166), Carduncellus multifidus (t. 9,167), Corokia macrocarpa (t. 9,168), Salvia superba (t. 9,169), Epidendrum pumilum (t. 9,170), Cotoneaster glaucophylla forma serotina (t. 9,171), and Acacia extensa (t. 9,172). Crinodonna Corsii is a generic hybrid, and appears to have been produced simultaneously in Italy and California. It was described—in *The Gardeners' Chronicle* for January 15, 1921—by Dr. Attilio Ragioneri, of Castello, near Florence, who raised it by crossing Amaryllis Belladonna and Crinum Moorei, the former being the seed parent. Mr. F. Howard, of Los Angeles, California, made the same cross, the first of the four plants which he secured flowering in 1915, but the flowers were badly formed. The second plant to flower, however, produced blooms which corresponded with those of Dr. Ragioneri's plant. Mr. Howard's cross was named Amarcrinum Howardii, which name, of course, is superseded by Crinodonna Corsii. A figure of Mr. Howard's plant was published in *Gard. Chron.* for November 21, 1925, together with comments upon it by Mr. J. Coutts, and these are quoted at length in the *Botanical Magazine.* Picea omorika, the Serbian Spruce, was discovered in 1875 by Professor Joseph Pancic, in the Tara Planina, on the right bank of the Drina. It was introduced to cultivation in 1881, and has since become fairly widely distributed in Europe. It has been figured and described in this journal several times, the first occasion being in 1884 (Vol. XXI, pp. 308, 309, Fig. 58). Eustephia Pamiana is a recent introduction among Amaryllids, the plant figured being one raised by Major A. Pam, of Wormley Bury, Broxbourne, from bulbs received from Tucuman. It is quite distinct from the other members of the genus, its flowers being half red and half green. Mr. George Forrest is responsible for the introduction of the very striking, crimson-flowered R. haematodes to this country, although it was first discovered by Père Delavay in 1885, on the Tali range, Yunnan. It is described as deserving to receive "every consideration on account of its beauty and its hardiness under conditions which provide for partial shade and an ample supply of water." Primula vulgaris var. heterochroma is the Oriental Primrose; the illustration is the white form, but the colours range from pure white to yellow, blue, or rose-purple. Carduncellus multifidus is an attractive-flowered North African species, with lavender-violet flowers; the plant illustrated was introduced from Algeria by Mr. E. A. Bowles a few years ago. The attractive Corokia macrocarpa is endemic in the Chatham Islands, where it was discovered by Dr. E. Dieffenbach in 1840; Mr. G. W. E. Loder has grown it successfully in his garden at Wakehurst Place, Ardingley, Sussex, for more than ten years. The name of Salvia superba is adopted by the *Botanical Magazine*, for the popular summer-flowering border plant known variously as Salvia nemorosa, S. nemorosa var. virgata and S. virgata var. nemorosa. It is suggested that it is a hybrid between S. silvestris and S. villicaulis; it is, apparently, sterile, and has never been recorded in a wild state. Epidendrum pumilum, from Costa Rica, is an attractive little Orchid which was introduced from Costa Rica by Messrs. Sander and Co., about 1890. Considerable confusion has existed as to the identity of the Chinese Cotoneaster raised at Wisley as C. glaucophylla and later identified as C. serotina. It is undoubtedly one of the most attractive of the Cotoneasters, being handsome in flower, fruit and foliage, and it has now been identified as C. glaucophylla forma serotina. Acacia extensa, from the south-west corner of West Australia, is a plant of somewhat straggling habit, but it compensates this by producing a wealth of brilliant yellow blooms; at Kew it is grown in the Temperate House, being too tender for the open garden.

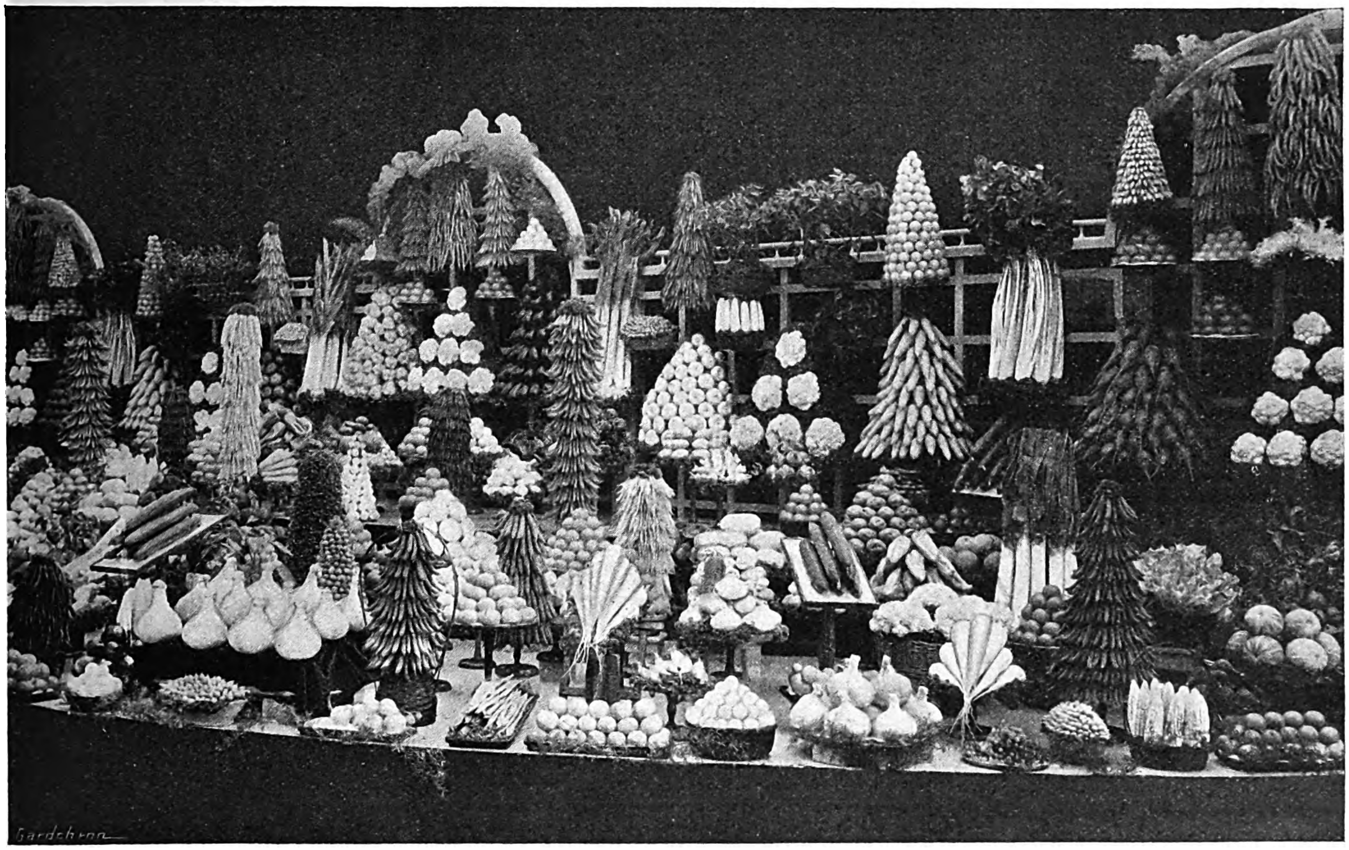

FIG. 85.—SOUTHPORT SHOW: A GRAND EXHIBIT OF VEGETABLES STAGED BY THE HON. VICARY GIBBS (GR. MR. E. BECKETT).
(see p. 193.)

Antwerp International Horticultural Exhibition.—A good deal of the preliminary work, preparation of the ground in front of the hall,—planning of the gardens, etc.—has now been accomplished, and intending exhibitors at the International Exhibition to be held in Antwerp in 1930 are being invited to go over and inspect the various sites available. The first of the sectional or "seasonal" exhibitions is to coincide with the opening of the World's Fair, but up to the present we have seen no statement as to the actual date. It will probably be in April. Another seasonal exhibition is to comprise Roses, Sweet Peas, and Carnations, and will last from June 23 to 26; cut flowers, Dahlias, and market garden produce will be shown from September 13 to 16, and Chrysanthemums and fruits from October 13 to 15. Each of these special shows is to be arranged by an expert, the four mentioned above being undertaken by M.M. John Juchem, Ed. Cools, Josse Goris and G. Wachtelaer, respectively.

Appointments for the Ensuing Week.—MONDAY, SEPTEMBER 9: National Chrysanthemum Society's meeting. TUESDAY, SEPTEMBER 10: Royal Horticultural Society's Committees meet; Jersey Gardeners' Society's meeting. WEDNESDAY, SEPTEMBER 11: National Dahlia Society's Show; Royal Caledonian Horticultural Society's Exhibition (two days); Sheffield Chrysanthemum Society's lecture. THURSDAY, SEPTEMBER 12: Faversham Chrysanthemum Society's meeting. FRIDAY, SEPTEMBER 13: National Rose Society's Show (two days); Royal Horticultural and Arboricultural Society of Ireland's meeting; Leeds Paxton Society's visit to Leeds Allotment Show; Manchester and North of England Orchid Society's meeting. SATURDAY, SEPTEMBER 14: Leeds Paxton Society's Chrysanthemum Show; Royal Horticultural Society of Courtrai's (Belgium) International Exhibition (three days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Victoria Regia.*—It may not be uninteresting to know that this fine Water Lily can be grown in perfection in a much smaller tank and house than many suppose it possible for it to thrive in. It may now be seen in the most robust health, and flowering profusely at Flitwick Manor, Bedfordshire, the seat of Mr. Brooks. The Gardener, Mr. Hewetson, had a seedling plant of it sent him a distance of more than one hundred miles, on April 12 last he planted it as soon as he received it in a slate tank, nine-and-a-half feet long by nine feet wide, and three-and-a-half feet deep, in a compost of strong turfy loam and decayed cow manure, and I have not seen any plant of this Lily growing so luxuriantly, or flowering so freely. The leaves measure five-and-a-half feet in diameter, many of them hanging over the sides of the tank. Other aquatics are growing in similar tanks with equal vigour, and are flowering abundantly. At present there are many beautiful flowers open on Nymphaea spodiana (?) and others are showing for flower. All were planted in the same compost, and have had comparatively but little fire-heat. *J. F., Luton Hoo Park. Gard. Chron., September,* 9, 1854.

Publications Received.—*Jones' County Court Guide,* by Charles Jones, revised by J. Prys Williams; pp. 391; Messrs. Effingham Wilson, 16, Copthall Avenue, E.C.2., price 10s. 6d.—*A Tentative List of Tulip Names,* pp. 80; The Royal Horticultural Society, Vincent Square, S.W.1, price 1s.—*Curtis's Botanical Magazine,* Part I, Vol. CLIII; Messrs. Bernard Quaritch, Ltd., 11, Grafton Street, W.1., price 17s. 6d. net.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Odontoglossums.—The cool-growing members of this genus, together with Cochliodas, and the many hybrids derived from these two, thrive well when grown in a cool house shaded from direct, bright sunshine, with ample ventilation, and moist surroundings. A buoyant atmosphere should be maintained at all seasons, and during the summer months no fire heat is necessary, unless cold, wet spells of weather occur, when a little warmth in the pipes for a short time will generally help to keep the atmosphere sweet (with plenty of bottom ventilation) and prevent the temperature falling below 55°. The top ventilators should be opened on all favourable occasions, increasing the amount of air admitted during moist, warm weather, but cold draughts should be avoided. During the winter a minimum temperature of 50° should be aimed at, but no harm will accrue should the temperature fall a few degrees below this during very severe weather, rather than use excessive fire heat. It should, however, be realised that many of the occupants of this division are making their growth through the winter months, and should be kept growing steadily, and this requires a minimum of over 48°, when the necessary fresh air is allowed. This year, during the spring and early summer months, the weather conditions were not favourable to the growth of these cool-house Orchids; several weeks of cold, dry, east winds in the spring, followed by the hot, and still very dry, spells of summer weather, made it very difficult to maintain suitable growing conditions for the plants, which suffered a little in consequence. During the past month the weather conditions have been more favourable to the cultivation of these popular Orchids; the moister atmosphere and more subdued light, together with the cooler evenings, have been most beneficial to them, and they have responded quite readily to them. Plants that flowered during the spring and early summer months are now making fine growth.

Repotting.—Odontoglossums that are in need of repotting may be attended to as the required stage is reached. New roots are generally produced in quantity just as the young growths are beginning to form pseudo-bulbs, and this is the best stage at which to repot, provided the soil is not sour, in which case it is best to repot directly the new roots commence pushing forth, when the plants establish themselves more quickly than if done at an earlier stage. Any plant in this stage that is in need of fresh compost, or a larger receptacle, should be turned out and all old compost and decayed roots removed, especially the decayed portion in the centre of the ball. Any leafless back pseudo-bulbs should be cut off, leaving two or three to each lead. A little powdered charcoal should be dusted on the severed portions, to prevent decay. Well-drained pots of a suitable size should be used; it is safer to use pots on the small side than to over-pot them, which often results in decayed roots during the winter should they remain moist for a long period. Keep the bases of the pseudo-bulbs about level with the pot-rim; it is not advisable to bury any pseudo-bulbs or rhizomes beneath the compost, which should be pressed in firmly around and among the roots. A suitable rooting medium consists of equal parts of Osmunda and soft A.1. fibre, and one part chopped Sphagnum-moss; a little extra fresh moss may be used on the surface. Water should be afforded very sparingly until the roots are well established in the soil, strict attention given to shading, and the surroundings and pots sprayed in suitable weather to encourage root action.

Pleiones.—Various members of this genus are completing their growth and will require ample supplies of water at the roots until this is accomplished; any feeding with liquid manure should be discontinued when the leaves are fully matured. As the leaves begin to die off water should be withheld gradually until they fall, when only a limited quantity at rare intervals will be needed until the flower buds appear, when the supply should be slightly increased until the blooms are fully developed, care being taken to avoid any moisture collecting in the young growths, which quickly decay if allowed to remain in that condition.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Early Dessert Pears.—Those who have not grown Pear Laxton's Superb should make a note of it, as it is, undoubtedly, the best-flavoured Pear we have at the end of August. It crops regularly at an early age, and the trees are vigorous and healthy. In common with most early Pears, the fruits should be gathered and eaten before they are quite ripe. Clapp's Favourite is an early September variety of only moderate flavour. Williams's Bon Chrêtien is to well known to need any description, beyond that it is fertile and prolific, and should be gathered before it turns yellow. Dr. Jules Guyot is very similar to Williams's Bon Chrêtien in appearance and quality, and is a regular cropper. Beurré d'Amanlis bears fruits of large size and of good flavour. The skin is a bright green, slightly bronzed on the exposed side, the whole turning yellow with maturity. It bears consistently and is very hardy. Marguerite Marillat is another September variety of quite good flavour. The fruits are very large, orange-yellow with a red flush and patches of russet. Its growth is strong and upright, and it bears freely in warm and sheltered situations. Conference is a dessert Pear of good quality, its fruits being medium in size and very long-necked, yellowish-green in colour and much russeted. Early Pears should not be left too long on the trees and when stored, even for a few days, they decay at the core or become mealy. Examine the trees regularly and gather a few of the more advanced fruits before they are quite ripe. In that way the season of use will be lengthened and the fruits better flavoured.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Nerines.—These greenhouse bulbous plants are now pushing up their flower spikes, and from now onwards they should be well exposed to the light in a cool greenhouse. At this stage of cultivation the plants should not be overwatered, but when the flower spikes are moving and the plants are making their foliage, every encouragement should be given them to make as much growth as possible. Nerines resent frequent potting but appreciate an occasional top-dressing of good fibrous loam, leaf-soil, and some decayed, dried cow manure. Some of the surface soil may have to be removed before the top-dressing is applied. Considerable progress has been made in the raising of new hybrid Nerines in recent years, but quite one of the most useful is Nerine Fothergillii var. major.

Annuals.—There are a number of annuals suitable for pot work and for producing a fine display of flowers during the spring. Among the best are Clarkias and Schizanthuses. If sowings of these are made now, the resulting plants should make good flowering subjects by next April, while a second sowing made a month hence will continue the display until June. It is important to remember that cool treatment should be given at all stages of growth, and that the plants' greatest enemy is dampness and coddling. Sow the seeds thinly in boxes or pans, in a light, open compost, and raise them in a cold frame. So soon as the seedlings can be handled with safety, prick them out singly, or three in a three-inch pot. The single plants may be grown on into six-inch pots, while the groups may be potted on undisturbed into larger receptacles. The plants should be pinched back about twice to induce bushy growth. Careful watering and staking of the plants is essential to produce shapely specimens.

Swainsonia galegifolia (coronillaefolia).—This species and its varieties purpurea and alba, are useful for training up pillars in the greenhouse, and are also attractive when trained around sticks or wires to form specimen plants. They grow very quickly and, provided they are frequently supplied with applications of liquid manure, will flower for a considerable period, even when the roots are confined to receptacles of only moderate size. Cuttings of young shoots taken now will form good plants for flowering next season, and will root freely if inserted in light, sandy soil, the cutting pots being placed on a mild hot-bed. This plant will grow in almost any soil, but a mixture of loam, leaf-mould and sand will be found the most suitable.

Humea elegans.—Make another sowing of this graceful plant towards the end of the present month. Cultural details were given in a previous calendar.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House.—The early and mid-season varieties of Peaches and Nectarines will be over, and very late ones swelling crops freely. The management of these until the crops are cleared will include abundant ventilation, syringings on fine mornings, without wetting the fruits, and careful watering—those nearly ripe with plain water. Late Pears, Apples and Plums should have light stimulants, both liquid and solid, so often as required. If well cropped, the trees will be making very little growth, otherwise all laterals should be kept pinched closely to let in light and air, and to mature the flower buds, which should be ripe by the end of September. When the fruits approach ripeness they cannot be handled too carefully, as the slightest pressure sets up fermentation and the flavour is destroyed; many good growers do not exercise half enough care in gathering and packing fruits.

Melons.—Late plants should now be hastened forward with all possible speed by closing the house early to trap sun-heat, and a more or less moist atmosphere maintained, according to the state of the fruits. If still swelling, the surface of the bed and the floors may be well syringed with tepid water at closing time, but on no account should the foliage or stems be wetted, as moisture about the collars now that the nights are longer and colder, is sure to result in canker. Early closing will greatly economise fire-heat, but the time has now arrived for warming the pipes to maintain a proper amount of heat, with a little night air, and to prevent an accumulation of stagnant moisture in the lower part of the house. Watering will also require careful attention, and here the advantage of having late plants in pots will be apparent, as all the roots are close to the sides, a position favourable to watering without wetting the collars of the plants. A little warm liquid manure may be given until the fruits have attained full size and are netting freely, but of two evils, it is better to under-feed than to try and force the fruits beyond their normal size, especially at this late period, as medium-sized Melons will keep sound longest and carry the best flavour. Another important matter is that of bottom-heat, which should not be overlooked; there is no period when a sharp bottom-heat is of more advantage than at the finish. Frame Melons will now be nearly over, but where fruits still remain unripe, the bottom-heat material should be examined carefully and renovated if necessary. Hot-water pipes have spoiled the majority of modern gardeners for frame culture, but with improved varieties a higher percentage of first-class fruits can be grown by renovating the linings of the hot-beds regularly, by early closing to entrap sun-heat, and careful protection with matting before nightfall.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Sowing Lawns.—On light soils the best season to sow new lawns is at the end of August or as early in September as conditions permit. The soil is warmer at the end of summer and early autumn than during spring, and the autumn rains and heavy dews are conducive to good germination. Grass sown now has ample time to become well established before the cold weather sets in; it has also been proved that seedling weeds are not nearly so troublesome where lawns have been sown during early autumn as on those where the work has been left until spring. Prepare the site by thorough digging, and manuring if the soil is poor, as much of the future results depends on the initial preparation. The seed-bed should be prepared by treading the ground until it is perfectly firm and level, and when walked on hardly shows the imprint of the foot. To produce a close, dense turf within a year under normal conditions, at least one ounce of seeds should be sown to the square yard, but this amount can be doubled if it is desired to have an early result. Sow seeds of the finest quality only.

Border Carnations.—Those plants which were layered early in the season should now be ready to plant in their permanent beds. To have the plants well established in their new quarters before severe weather sets in is one of the chief points the cultivator of these hardy plants should aim at. Carnations like an open, sunny position and deeply worked soil, which should be moderately rich, and contain a good proportion of lime-rubble and soot. Pinks also should be planted without delay. On some soils all that is necessary with these is to lift the old roots and divide them into small pieces and replant where they are to bloom. Cuttings or pipings of Pinks that were inserted in frames in July ought now to be planted out.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Cauliflowers.—To secure good, early heads of Cauliflowers next spring, it will be necessary to sow seeds now, and to make a further sowing about a fortnight later. Sow the seeds thinly in a sheltered spot in the open garden, or in boxes. So soon as the seedlings are large enough, prick them out about four inches apart into frames where plenty of air can be given to keep the plants free from dampness. A number may be pricked into four-inch pots for potting on to produce a supply in early spring, but on no account should the plants be coddled; a free circulation of air should be maintained on all possible occasions.

Onions.—Spring-sown Onions will now be ready for gathering, this work being done preferably in dry weather. For this operation place the Onions in full sunshine for a few days to dry them thoroughly, and turn them over every day to ensure they become thoroughly dry before removing them to the store room, which should be airy and dry. They may be bunched and hung up on the rafters. The ground from which the Onions have been cleared may be dug and planted with spring Cabbages, Flower of Spring and Harbinger being two reliable varieties for this purpose, allowing eighteen inches between the lines and twelve inches from plant to plant. Later Onions should be examined and the tops bent over so as to help the bulbs to swell to their fullest extent and quicken the ripening of them; but so soon as they have ceased swelling and are noticed to be on the wane, lift the bulbs with a fork and dry them off.

Lamb's Lettuce.—This salad,—Corn Salad, as it is frequently called—makes an additional autumn and winter salading. The seeds may be sown now in drills, in the same way as for Lettuce, but it is not necessary to thin the seedlings so severely. This plant is very hardy, as a rule, and will generally continue to produce plenty of fresh leaves throughout the winter months.

General Work.—Should further sowings of Spinach be necessary, sow the Prickly-leaved type on any vacant ground. If there are not enough Lettuce and Endive plants to maintain a good supply, further sowings of these salads may be made; also Model White and Veitch's Globe Turnips, for nice Turnips can still be grown before the ground becomes too cold.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Vegetables. — Spring Cabbages which were sown in July should now be planted on the most favourable piece of ground possible. In most districts a border facing due south is necessary, and if ground from which Potatos or Peas have been cleared is used, surface cultivation will suffice. Being of compact growth, twelve inches apart in rows twenty inches apart is quite a good spacing. Care should be taken to keep off slugs for a week or two until some growth has been made, the best plan being to poison the pests with Paris green administered on bran, of which they are very fond. When established, a collar of sifted coal ashes placed around each plant is of great service in steadying the plant, keeping the stem dry, and warding off slugs as well. Mid-season Potatos should now be ready for lifting, and the first dry day should be chosen for this work. Examine the tubers as they are lifted, removing all diseased or small specimens, and leave the sound crop to dry for an hour or two before placing them in pits or a cool shed. A pit or clamp is undoubtedly the best place for storing Potatos, and should not be too deep or broad. Six inches deep by eighteen or twenty broad will allow of sufficient bulk to ensure good keeping. Clean, drawn straw should be placed next the tubers and covered with a six-inch layer of soil, well beaten, to finish off.

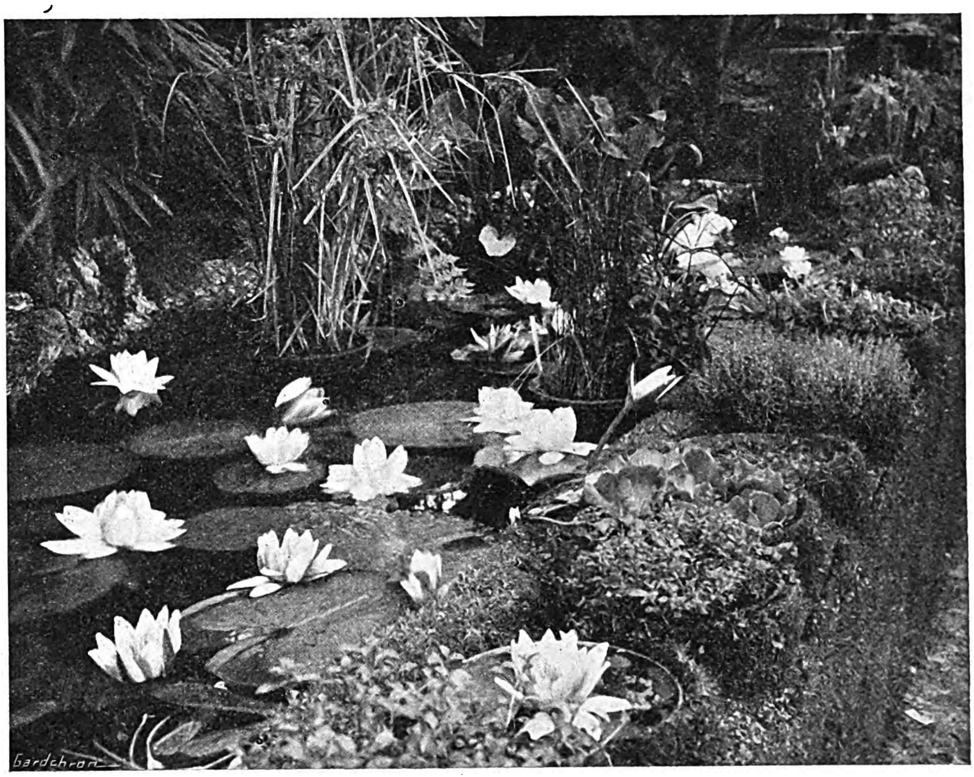

FIG. 86.—SOUTHPORT SHOW: MR. AMOS PERRY'S EXHIBIT OF AQUATIC PLANTS.

(see p. 193.)

The Rock Garden.—When seeds have been saved, all old flower heads should be removed, and any overlapping growths cut away. Some gritty soil should be carefully worked with the fingers among the dwarfer subjects, and the ground stirred with a fork in other cases. Where dwarf Heaths are grown they soon get leggy and overgrown, and if this occurs they should be pegged down and the bases of the stems covered with soil; if this is of a peaty nature, so much the better, but so long as lime is absent it matters little what is used. If this is carefully done, the appearance of the plants will be much enhanced, and their life lengthened considerably. Tree Heaths, as they attain size, should be supplied with stakes, as many of them are very brittle and are often damaged badly by wind or during falls of snow.

Malmaison Carnation Layers.—These should now be ready for potting, and should be severed from the parent plants several days before this operation. Two-inch pots are best for this purpose, and as the compost was in large measure leaf-mould, it should be shaken or washed off the roots, while if the latter are too long to go into the pots without twisting, they should be shortened with a sharp knife. Fine soil, consisting chiefly of good loam with a little sand, lime-rubble and burnt earth added, is the best compost at this stage. Pot each layer only so deeply as to hold it erect, and firm the soil by tapping the pot on the bench. Place the potted layers in a close, cold frame and keep them sprayed and shaded during the day, admitting air at night only for the first week, after which they may receive all the light and air possible.

Chrysanthemums.—Every plant which is well set with buds should be housed, as frosts are quite likely to occur and generally do before mid-September. If housing is impossible, screens will provide sufficient protection for another month, unless the weather be very wet.

Strawberries.—Cultivate between the rows of recently-planted Strawberries and remove all runners as they appear. If further plantings have to be made for next year's fruiting, no time should be lost in getting the work done, as growth will soon slow down, and poor results follow late planting.

INDOOR PLANTS.

REHMANNIA HENRYI.

I KNOW not to what degree of hardiness this plant may lay claim, as all the examples within my experience have been grown in a cold house, either planted out or in pots; the large, somewhat Gloxinia-like flowers are little short of pure white and are splendidly foiled by the dusky, green foliage.

A much dwarfer plant than the well-known R. angulata, R. Henryi is even more beautiful, I think, and, apparently, is a "good doer" in a well-drained mixture of loam and leaf-soil. It is a plant of distinction and is possessed of high merit as a subject to include in a collection of choice and interesting cool greenhouse plants, and what is more interesting than a series selected from the numerous plants which fall just short of hardiness; a well-equipped structure with provision for a little heat during very severe weather, may be rendered a veritable treasure house at little expense.

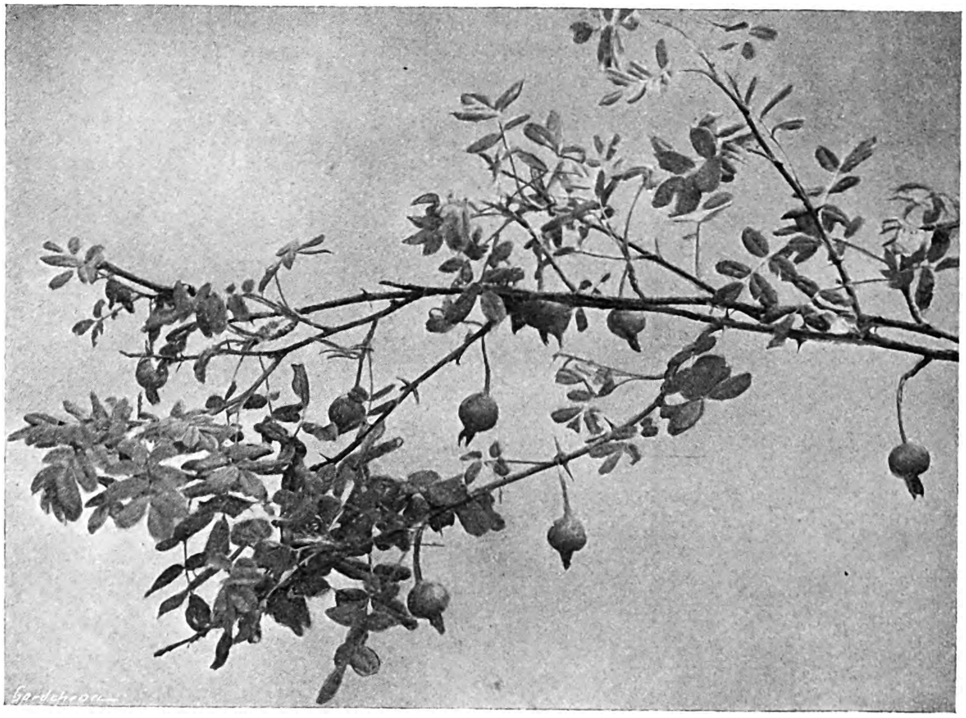

FIG. 87.—ROSA SERICEA: FRUITING SPRAYS.

MORAEA BICOLOR.

THE somewhat large, lemon-yellow or buff-coloured flowers of Moraea (Dietes) bicolor are striking rather than beautiful; the intensely dark spots, brownish-black in colour, accentuate the distinctive qualities of the blossoms if they do not invest them with additional beauty, and the ample, Iris-like foliage provides grace and charm to a well-grown group.

A native of South Africa, this Irid is an ideal plant for the cold greenhouse and will excel under similar treatment to that afforded Ixias; I recently saw a strong group of M. bicolor in full flower, the numerous flower spikes, eighteen inches to two feet in height, arising in delightful fashion from the tuft of Iris-like leaves; planted in rockwork within the greenhouse, the plant created a pleasing feature and evoked considerable interest, and when so grown, a colony may remain undisturbed, with decided advantage, for two or three years.

ANIGOZANTHOS FLAVIDA.

THE tall and branching inflorescence of this plant is most distinctive, and will invest a cool greenhouse with a feature of unusual interest; the flowers are parti-coloured, yellow and green, quite decorative, but not nearly so showy as those of the varietal form, A. f. var. bicolor, of scarlet and greyish-green colouring.

These somewhat uncommon greenhouse herbaceous perennials succeed admirably in a mixture of one part loam to three parts of peat; they are happiest when planted out, although pot-grown plants are quite desirable. Division of the roots in spring affords a ready means of increase, and an ordinary cool greenhouse will provide the ideal environment.

Native of Australia, A. flavida was introduced in 1808, and A. f. var. bicolor, from the Swan River district, in 1837. These summer-flowering subjects should certainly be grown where interesting and uncommon plants of decided beauty are cherished. *Ralph E. Arnold.*

ALPINE GARDEN.

GENTIANA PROLATA.

THIS charming member of the Asiatic group of Gentians has been at its best here during the past few weeks, and is only now beginning to pass into the disreputable, but highly satisfactory stage of fat, brown seed pods, or rather, fat seed pods within the encasings of dead flowers.

It is quite distinct from its nearest confrères among the Asiatics, *i.e.*, G. Farrerii and G. sino-ornata, while combining something of both of them in its appearance.

It is much earlier flowering than either of them, G. Farrerii is just commencing to open its large, Cambridge-blue trumpets as the flowers of G. prolata decay, and after G. Farrerii we shall have G. sino-ornata until almost Christmas, so it all helps in the succession of flowers, especially just now, when things are a wee bit dull in the rock garden.

As we are grateful for anything that gives a bit of colour, how much more should we value this Gentian which seems to be as beautiful as it is virtuous.

Virtue in a plant, of course, consists in its willingness to "do" with us, and from my two-years' experience with it I should say that G. prolata is going to thrive as well as G. sino-ornata (I wish I could write the same of G. Farrerii, which grows quite well, but never with the healthy abandon of "sino," as we call it). We have an old stone sink planted with my original seedlings, which I owe to the generosity of the owner of a famous "Gentian garden" in Scotland; they were planted in a rich mixture of leaf-mould, silver sand and broken sandstone in equal proportions, and they never looked back, but went ahead with a generosity of growth that was beautiful to witness.

Last year I was blessed with but one flower (from which I saved twenty-five seeds, all of which germinated), but this year it has been prodigal of its Cambridge-blue flowers.

I find it very hard to describe colours and almost always have to coin words or phrases to serve my ends and chance whether they convey the same meaning to other folks, so, I may state that the blue of G. prolata seems to me to be a "sybilant blue." I wonder if that will convey anything to anybody? It is a little paler than G. Farrerii, and has not such distinct throat markings; the flowers are smaller but open well, and it is a truly beautiful sight when, as was the case on my sink, there were some two hundred flowers open together.

The habit of growth is somewhat similar to G. sino-ornata, but smaller, stiffer and a darker green, the trailing stems being numerously clothed with the small, sharply-pointed, dark green leaves. It flops around like its larger cousins and the trailing stems will root as they go, with but the slightest encouragement.

As regards propagation I think it is going to be very easy, I have tried seeds, division and cuttings, the latter inserted at various times during the season, and all these methods have met with one hundred per cent. success. Some I treated as we treat G. sino-ornata and split them up when the first growth of the year was about half-an-inch long; these were planted straight out in the granite "Treasure Box" and have all grown and are now flowering well.

In a few years' time I think it will be as well known and grown as G. sino-ornata, itself, which latter I should say surely holds a record for rapid growth of popularity; it seems but yesterday that we were treasuring our few wee pieces, and now we speak calmly even of our tens of thousands. *Will Ingwersen, The Birch, Sharpthorne, Sussex.*

HARDY FLOWER BORDER.

PLATYCODON GRANDIFLORUM VAR. MARIESII.

ALTHOUGH some authorities regard it as a species the plant known in gardens as Platycodon Mariesii appears to be a Japanese form of P. grandiflorum. Indeed, the Kew *Hand List* unreservedly places the whole of the family under that one specific name. There can be few plants in cultivation, especially among the older introductions, whose great merits have been so over-looked as have those of the Balloon-flower. There may be some difficulty with some of the varieties, including the type species, just as there is with its ally, Ostrowskia. But that difficulty does not exist with the subject of this note, not at any rate to an extent sufficient to provide a reason for its exclusion from so many gardens.

I have never had any trouble with P. g. var. Mariesii. Planted in a deep, stony loam, which is never very dry or very wet, a colony of plants covering a couple of square yards has been an unqualified success for years. This variety does not grow above a foot or so. The stems are amply furnished with the rich green, egg-shaped, sharply-toothed leaves. They stand erect—no small concession this in such plants—and bear at each of the tips of their branching summits a loose cluster of the magnificent blooms. These flowers are produced in great abundance from July to autumn, the bulging, balloon-like buds expanding their broad, pointed segments to a diameter of three or four inches. These blossoms are of a fleshy texture with a satiny gloss and while the colour is usually a bluish-purple, rich and clear, the tint varies to powder-blue and starch-white, all kinds being more or less veined with a darker shade. P. g. var. Mariesii is entirely herbaceous, the foliage assuming a brilliant yellow before the stems disappear. Although the spring growth comes with the slugs, these pests do not attack them, at least that is my experience in a slug-infested garden, and the plant is unquestionably hardy. Since plenty of seeds are yielded for increase, division of the roots should be avoided, the plant resenting interference. Indeed, one of the joys of this splendid subject is that it so appreciates being left alone that the longer it remains undisturbed the better it is.

Mr. Ingwersen tells me that the Homestall variety of P. g. var. Mariesii is an even better plant, but as the specimens he was good enough to send me have not yet become fully established, opinions of mine from actual comparison would not be justified. In any event the Homestall form must be a very good thing if it ventures even to equal the typical Japanese at its best. The latter is in every way such an excellent garden plant that it would be doing it an injustice to recommend it on the strength of the fact that it blooms at the "back-end" when there is little to compete with it, for it is able to hold its own and more with the choicest herbaceous subjects of the season. *A. T. J.*

ADENOPHORA FARRERI.

A day or two ago I saw, in a Dumfriesshire nursery, a good plant of this new Adenophora in full bloom, and it struck me as being one of the prettiest of this genus for the border of good hardy flowers. It is of erect habit and about two feet high, and bears a number of beautiful bright blue, bell-shaped flowers. These flowers are more tubular in form than those of most of the other Adenophoras. This species is hardy and is one of the numerous Adenophoras which practically take the place of the Campanulas in the higher parts of Tibet. It does not appear by name in Farrer's great work, *The English Rock Garden*, and I cannot tell from the references in the appendix of that work, whether A. Farreri is one of those given under number and without adequate descriptions.

PYRETHRUM HAROLD ROBINSON.

We have so long been accustomed to regard James Kelway as the finest of the single crimson Pyrethrums that it comes as a surprise to meet with that called Harold Robinson, a recently introduced variety with considerably larger flowers of as fine a colour. This grand Pyrethrum is of splendid habit and has long, strong stems, so that it is very valuable for cutting. When better known it will become a favourite, and will be much appreciated—as much, indeed, as that grand Pyrethrum, James Kelway, has been in the past. *S. Arnott.*

ROSE GARDEN.

ROSA OMEIENSIS AND R. SERICEA.

Considerable confusion of names exists in gardens between the Chinese Rose, Rosa omeiensis and the Himalayan Rose, R. sericea, of Lindley. The confusion would appear to have first begun when the enormous translucent form called var. pteracantha was first introduced to commerce by the late M. Maurice de Vilmorin. This was raised from seeds sent from Yunnan in 1890 by the Abbé Delavay, and named by Franchet R. sericea var. pteracantha. This was ten years previous to the introduction of the Mount Omi Rose, R. omeiensis, from western Hupeh, in 1900.

In *Plantae Wilsonianae*, Messrs. Rehder and Wilson place all the Roses formerly considered Chinese forms of R. sericea by Franchet and Focke under R. omeiensis. The true R. sericea, of Lindley, they consider as confined to India. The two characters cited as most readily distinguishing the two species are the greater number of leaflets in R. omeiensis, and its short, swollen, or fleshy, fruit stalk. The true R. sericea, Lindley, has a long, slender fruit stalk. The differences in the fruits are clearly shown in the two accompanying illustrations, R. sericea, Lindley, Fig. 87 and R. omeiensis, Rolfe, Fig. 88.

Mr. Wilson describes R. omeiensis as abundant in upland thickets, on the margins of woods and in forest glades on the higher mountain ranges of western Hupeh and Szechuan.

R. omeiensis, as cultivated in gardens, is a very variable species. The shoots may be smooth, or densely setose; there may be few, or very numerous, small, or large, spines; the number of leaflets varies from seven or nine to fifteen or seventeen, in the latter case I believe exceeding in number the leaflets of any other Rose. The colour of the fruits is also very variable. The type plant had red fruits with a yellow, fleshy stalk; var. atrosanguinea, Rolfe, has very dark crimson fruits, and in var. fructu-luteo they are golden-yellow; var. pteracantha, Rehd. and Wils., is the form with the enormous blood-red, translucent spines. The fruits of R. sericea are bright red, and have long, slender stalks.

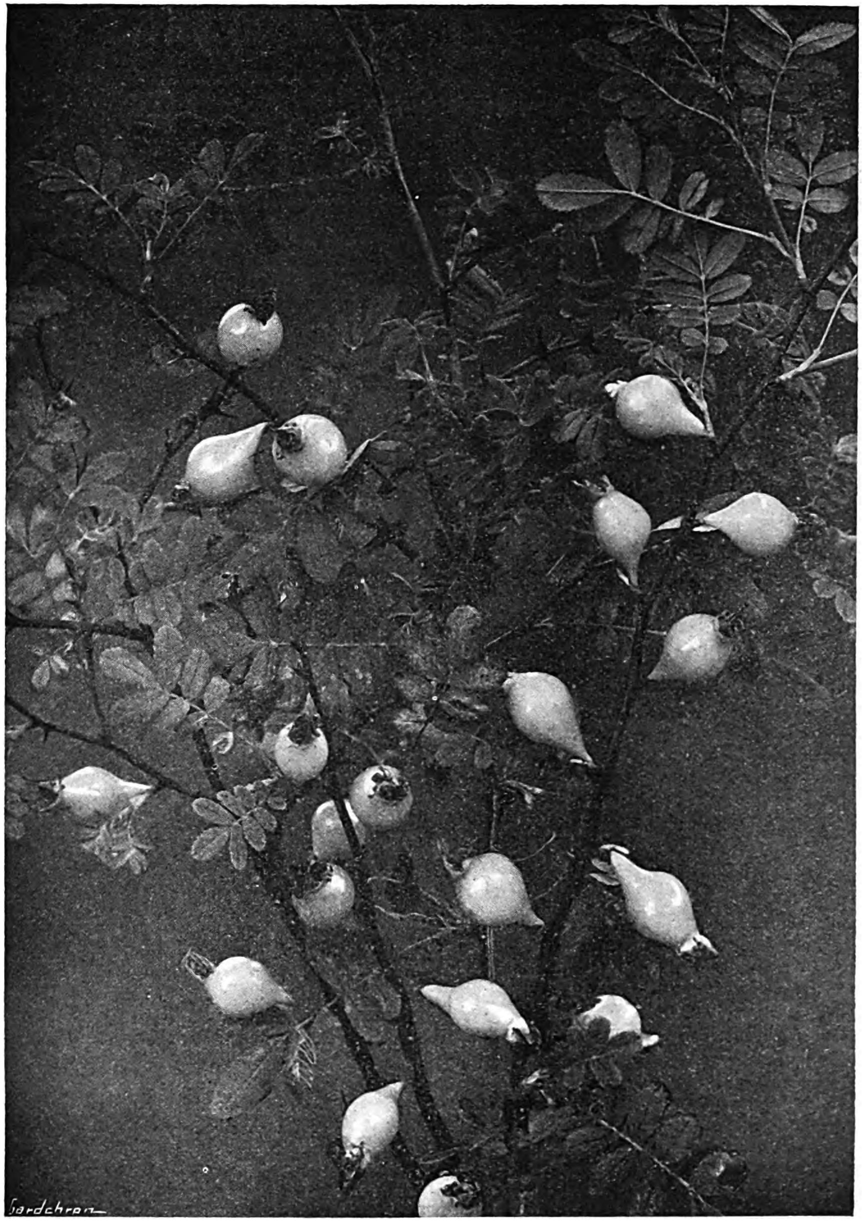

FIG. 88.—ROSA OMEIENSIS: FRUITING SPRAYS.

Among the wild Roses, R. omeiensis and R. sericea are easy to discern because of their long, slender, widely-arching branches freely clothed with the Fern-like foliage. Growing from eight to ten feet or more in height and diameter, the bushes are objects of grace and beauty from spring to autumn. They are among the earliest of the wild Roses to open their flowers—about mid-May. The white, or creamy-white flowers of these two species are distinct in having nearly always four petals arranged in the form of a Maltese cross. *A. Osborn.*

TREES AND SHRUBS.

DRIMYS WINTERI.

Known in its native habitat as El Canelo, this tree is regarded with respect almost amounting to veneration by the Araucarian Indians of the south of Chili. Under its branches were held their councils of peace or war against neighbouring tribes or families in less peaceful times, while its branches are still used as symbols of peace and justice. The Indians believe that anyone who utters a lie beneath its shade will certainly be punished within a very short time. Young Araucarian couples also make their vows under the Canelo, and these are considered to have the same importance as a religious ceremony, binding the parties concerned for the rest of their lives.

The wood of Drimys Winteri is highly aromatic, of little use for fuel even when dry, while if burned green it gives off a dense, acrid smoke very painful to the eyes. It was formerly much used as medicine, the leaves and bark being employed as poultices or in baths for skin affections and to cure scurvy.

It is one of the most beautiful Chilean trees, especially when seen *en masse*; commencing to flower in August, it is at its best during September and October, when the trees are smothered with creamy-white flowers borne in compound umbels. The black, oval fruits are also conspicuous in autumn and are beloved of the birds; they are fleshy berries containing many slightly curved, black seeds.

D. Winteri is, I believe, the only Chilean representative of the Natural Order Magnoliaceae. Growing in marshy woods and river beds, it never seems really happy unless it has its roots in water. It is a rapid grower, reaching, in the south and parts of central Chili (only in certain valleys), as much as forty-five feet in height, but it is comparatively short-lived.

As may be expected of a tree having a poor root system, the plants are frequently blown over, and when this occurs they immediately send up a forest of new growths vertically from the horizontal trunk. Occasionally specimens are found in the valleys of central Chili which are almost dry during the summer; under these conditions they form compact, well furnished trees or shrubs. *G. W. Robinson.*

OLEARIA OLEIFOLIA.

UNDER this name, a remarkably attractive Olearia has proved itself a valuable addition to hardy Olearias at Scarborough. Quite unlike the familiar Olearia Haastii, it has a spreading growth and bright green foliage. The leaves are of considerable width and bright green in colour, so one is at a loss to know how it has gained its name. Its flowers are slightly less pure white than those of O. Haastii and much less abundant, so they contrast very prettily with the green leaves.

Mr. Clark, the Corporation head gardener, is so impressed with its superior merit that he is inserting a quantity of cuttings. The healthy and spreading habit and cheerful colouring of the plant make it thoroughly attractive. If it has proved itself as thoroughly hardy inland as it has by the seaside, it is worthy of a place in every garden. *Edward H. Woodall.*

BUDDLEIA VARIABILIS VAR. NANHOENSIS.

FEW shrubs are more widely grown than Buddleia variabilis and its varieties, with the exception of this one, of later introduction and only just beginning to appear in some catalogues. It was found by the late Reginald Farrer in Kansu, south-west China, in 1914, and its varietal name refers to the Nan-Ho valley, where it was discovered. As in the type, the colour of the flowers varies from light mauve to deep purplish-mauve.

It is the only Buddleia, so far as I am aware, which can be grown in small beds and borders, for it seldom attains a height of more than four feet, even when in flower. It needs pruning in February, the young growths of the previous year being cut back nearly to the point of origin or to the first good pair of shoots. It appears to be rather less hardy than its near relatives, at least, while young, and in that stage should be protected during severe weather. *A. Petts.*

HERBACEOUS PAEONIES.

IN spite of the enormous array of excellent varieties in commerce, Paeonies have not yet become so common in gardens as other well-known border aristocrats. There are, of course, definite reasons for this, although the time is coming when these reasons will no longer exist. Primarily, the delayed production of flowers in newly-planted specimens has warned off those who like to see immediate returns for their outlay; but, owing to a better understanding of the life-history of the Paeony, this tardy production of flowers should soon be overcome.

Unlike the majority of herbaceous perennials, as most readers of *The Gardeners' Chronicle* are aware, the herbaceous Paeony has completed its work above ground by the end of August and the plant then commences to develop its first set of new roots, and it is on this autumn-produced system that a growth of fibrous roots is formed the following spring. It is on this secondary system of roots that the well-being of the plant depends, and it is therefore obvious that the ideal time to transplant Paeonies is during the month of September. All who have had any experience with these plants will readily admit that plants which are put into the ground during that month will flower much earlier than those which are planted at a later season. Nurserymen usually tell their prospective customers that Paeonies may be planted from September to March, and although this is perfectly true, yet it would get the Paeony into better repute if they made a strong point of advocating September planting.

When Paeonies are once established in favourable conditions they give as little trouble as any other border perennial, and they increase to quite large clumps without showing any signs of deterioration. It is worth while studying what these conditions really are. Haphazard cultivation probably accounts for failure to produce good flowering specimens. It is true Paeonies will thrive in most garden soils, but whatever the soil, it is imperative that it be properly prepared by good drainage, deep digging, and liberal manuring. Later on, the ground may be kept in good heart by occasional dressings of bone-meal and by summer mulches of rotten manure. While thriving in positions in full sunshine, I think most gardeners will agree that partially shaded situations are to be preferred, as the stronger colours will not fade so quickly and the flowers themselves will have a longer life.

Perhaps another factor which deters the multitude from growing Paeonies is their relatively high price. New varieties are certainly expensive. They cannot be otherwise when we consider that it takes something like fifteen years to produce enough plants of a new variety for commerce. It takes some years for a seedling to develop into a flowering plant, and many more seasons to propagate a sufficient number for sale. Fortunately, during the forty years that specialists have taken the Paeony in hand there have been evolved a large number of exceptionally fine sorts, and the stock of these is now large enough to enable the raisers to offer them at prices varying from two shillings to five shillings each, and no lover of Paeonies need complain at having to pay these prices for such worthy sorts as Baroness Schröder, a double, flesh-white variety, or the beautiful single-flowered Lady Helen Vincent, which has large, white flowers daintily tinted flesh. Only those who have had the privilege of seeing the valley of Paeonies at Langport in full bloom can form any idea of the wonderful range of shades and tints which are found in these flowers, to say nothing of their most alluring fragrance. When one considers the perfection that has been attained it is a matter for surprise that its numerous admirers have not yet founded a Paeony society to encourage its wider cultivation. The American Peony Society is doing very useful work and when we remember that some of the finest sorts grown in the United States originated in our own land, the formation of an English society might well be seriously considered.

Among the sorts that may be purchased at a moderate price, the following are of outstanding merit. Double-flowering varieties: Boule de Neige, sulphur-white, tipped carmine; Coronation, cream, edged light pink, golden anthers; Lady Alexandra Duff, French-white, fragrant, one of the most popular varieties in the States, and some experts say it is the best sort yet raised; General McMahon, deep purple-crimson; James Kelway, white, very fragrant; Le Cygne, milk-white, early. Single-flowered varieties: Flag of War, crimson; Lady Helen Vincent, white, tinged flesh; Lady Ley, soft rosy-pink, golden centre; Letitia, bright rose; Whitleyi, white, early; Wilbur Wright, deep maroon. The following higher-priced varieties are true aristocrats of the Paeony family; some are of recent introduction, and others are scarce, older older sorts. English Elegance, delicate flesh-pink, single flowers produced in bunches; Kelway's Lovely Lady, large single flowers, flesh-pink, turning white; Nellie, immense blush-pink, single; Wild Rose, white, speckled pink; Kelway's Gorgeous, full double, shining white, stated by the American Peony Society to be the second best Paeony in existence; Joy of Life, double, lavender-pink, very fragrant; Globe of Light, silvery-rose guard petals, pale rose and yellow petaloides; Marion Cran, semi-double, flesh-pink, turning to white. *H. Greaves, F.L.S.*

THE GENUS PRIMULA.

(*Continued from p.* 169.)

PULVINATA (Balf. f.). Cushion P.
(Bullatae).

A DELIGHTFUL dwarf, sub-shrubby, cushion-like, more or less evergreen species with a much-branched, woody rootstock, clothed with the dry, rust-coloured remains of old foliage. The leaves have lance-shaped, blunt blades about one-and-a-half inch long, tapering to pale green or white, glandular, concave, scarcely sheathed stalks, about equalling the blade in length; margins cut into numerous undulate, rounded, tooth-like lobes; both surfaces moderately clothed with capitate, translucent glands emitting a viscid secretion; upper surface intense green, somewhat deeply veined, underside paler. Flower stem about five-eighths-of-an-inch tall, reddish, viscid, bearing an umbel of two to three yellow blossoms, creamy-white on the reverse, on reddish, fragile stalks. Corolla about three-quarters-of-an-inch across, with broadly-heart-shaped, notched lobes, recurved at the tip; tube cylindrical, slightly longer than the calyx, with a ten-lobed ring in the mouth; the whole of the blossom is densely covered with minute, glandular hairs. Flowers in June.

Grows on precipitous, limestone cliffs, west of Atuntsu, in north-western Yunnan, at about 11,000 feet above sea-level.

Culture: As for P. Forrestii.

PUMILA (Pax). Pigmy Arctic P.
(Nivales).

A beautiful, dwarf, perennial species with a rosette of non-mealy, grass-like, pointed leaves one inch to three inches long; margins entire or furnished with remote, blunt teeth toward the tip. Flower stem one-and-a-half inch to two-and-a-half inches tall, slender, erect, non-mealy, bearing an umbel of one to three purple blossoms. Corolla about three-quarters-of-an-inch across, divided into five oval, retuse, slightly notched or entire lobes; tube cylindrical, nearly as long as the calyx.

Grows in damp situations among short herbage near the sea-shore, in St. Lawrence, north-eastern Siberia.

Culture: As for P. nivalis.

PUMILIO (Maxim.). Pigmy P.
(Farinosae).

A dainty, minute, densely tufted, non-mealy perennial species with elliptic or diamond-shaped, somewhat blunt leaves about half-an-inch long, tapering to a winged stalk about equalling the blade in length; margins entire or obscurely toothed. Flower stem short, bearing an umbel of one to seven pale rose-coloured blossoms. Corolla about three-eighths-of-an-inch across, with broadly heart-shaped, notched lobes; tube cylindrical, hardly longer than the calyx.

Grows in moist, alpine pastures, in the alpine regions of western Kansu, north-western China.

Culture: As for P. farinosa.

PURDOMII (Craib). Purdom's P.
(Nivales).

A beautiful, tufted perennial species with few, narrowly lance-shaped, pointed leaves from three to five inches long and half- to three-quarters-of-an-inch wide, tapering to a winged stalk; margins incurved, entire; upper surface coated with white meal, underside very densely so. Flower stem fairly stout, four to seven inches tall, erect, densely covered with white meal and bearing an umbel of three to twelve horizontal or drooping, lilac-mauve or bright violet blossoms with a greenish-yellow eye. Corolla about one inch across, with oblong or narrowly-oval segments; tube cylindrical, about five-eighths-of-an-inch long, almost closed at the mouth. Introduced in 1913. *Gard. Chron.*, 1913, Vol. LIII, Fig. 91.

Grows in damp, mountain pastures near Taochau, in western Kansu, north-western China, at 10,000 to 11,000 feet above sea-level.

Culture: Good, somewhat heavy, calcareous loam in a moist, open situation, well drained in winter, are the conditions indicated. *A. W. Darnell.*

(*To be continued.*)

AN ENGLISH GARDENER IN CHILI.

Chili is divided by its climate into three distinct zones, the northern provinces being dry and mostly semi-desert, and the south wet and well-wooded; however, for the purpose of these notes I propose to deal chiefly with the central provinces (roughly between parallels 31 and 35, S. latitude), where it rains during the winter months only (May-August). The remaining months form one long, continued dry period, which is accompanied by powerful sunshine and frequent winds, the combination of these conditions giving an exceptionally clear, dry atmosphere. From these facts it may easily be understood that the native plants belong to one of two broad groups: (a) Those which spring up with the first rain, grow rapidly, flower, fruit and die, or die back in the case of perennials; and (b) 1, trees and shrubs with thick, coriaceous leaves, extremely resistant to drought; 2, succulent plants and shrubs which drop their leaves and remain dormant; and 3, Cacti and Bromeliads.

Although very variable, both as regards dates and amount of rainfall generally, the first fall is in May. Immediately vegetation springs to life, and the brown, barren, semi-desert becomes clothed with infinite shades of green. Seedlings of all kinds of plants, shrubs and trees fight for supremacy and a place in the sun. One cannot fail to notice among the first and most vigorous many old acquaintances, which are more or less cosmopolitan; Thistles, in particular, have become firmly established, old clumps starting into growth and seedlings springing up everywhere in many areas, to the exclusion of everything else. Incidentally, they are turned to good account, the mid-ribs of the leaves being greatly appreciated as a vegetable, under the name of "Pencas," and the flower stems, known as "Tallos," are cut while young and eaten as salad. Rumex, both annual and perennial species, are common, as are Plantago lanceolata, Convolvulus arvensis, and a great many other "weeds of cultivation" with which we are only too familiar.

However, to come to the indigenous flora; as in most countries, the different authorities vary considerably in estimating the number of genera and species, but for the whole of Chili it is round about 5,000 species, many of which are endemic. The vast majority of these are only of botanical interest, and not worthy of consideration for purely horticultural purposes. From the point of view of plant ecology, there are three perfectly distinct types of vegetation in the central provinces:—1, The coastal flora, which might be conveniently sub-divided into (a) the sand-dunes, and (b) maritime flora of the rocky headlands and cliffs; 2, the dry plateaux and hills inland; and 3, valley bottoms and river beds.

The sand hills which extend along parts of the coast possess a strictly limited, but characteristic flora; a certain number of shrubs and stunted trees manage to exist in the hollows, but the majority of plants are low-growing perennials and bulbous plants, reinforced in spring by millions of annuals which have, indeed, a short life but a gay one! The shrubby perennials, which rarely attain more than a foot or two in height, are represented by Margyricarpus setosus, Colletia (hystrix ?), Ephedra americana (andina), and Acaena trifida. Another common plant is a small evergreen belonging to Asclepiadaceae. It has greenish-white, wax-like flowers, borne in closely-packed umbels, the habit of the plant closely resembling a low-growing Ivy. The leaves are triangular or linear, with auricled leaf-bases and in opposite pairs, but the short peduncles always twist to bring them to the light on the one side. All these subjects, and especially the Ephedra, have enormous root systems in proportion to the size of the plants.

It is largely among these clumps that the annuals find security and shelter during the seedling stage. One of the most drought-resisting shrubs which is found here belongs to Leguminosae; it has lemon-yellow flowers which are more tubular than is usual in this family, only opening sufficiently for the stamens and stigma to project. The foliage is dark greyish-green and imparipinnate, usually having about fifteen pinnae. About three feet high, it is slow-growing and apparently produces few seeds, for I have never been able to find one; it seems to increase largely by underground stems.

The family best represented among the herbaceous perennials is Compositae; there are at least a dozen species, one of these, with large, bright yellow ray florets, is one of the earliest spring flowers to bloom; and another which has spherical inflorescences, near Bidens, without ray florets, flowers right through the summer and dies back to a few inches of stem in autumn. A shrubby Compositae, with small, leathery leaves and compact habit, covering itself in summer with white, downy inflorescences, is one of the commonest plants along the coast.

Solanum crispum, a plant well-known in gardens at home, grows here like a weed, and makes big clumps; in summer, the leaves die off and the succulent stems remain dormant, again breaking into leaf and growth with the first rain. A compact-growing Linum, L. Chamisonis(?) is a showy plant; it has an enormous woody root-stock and an erect habit, typical of its family. The flowers are in terminal corymbs and bright gold in colour.

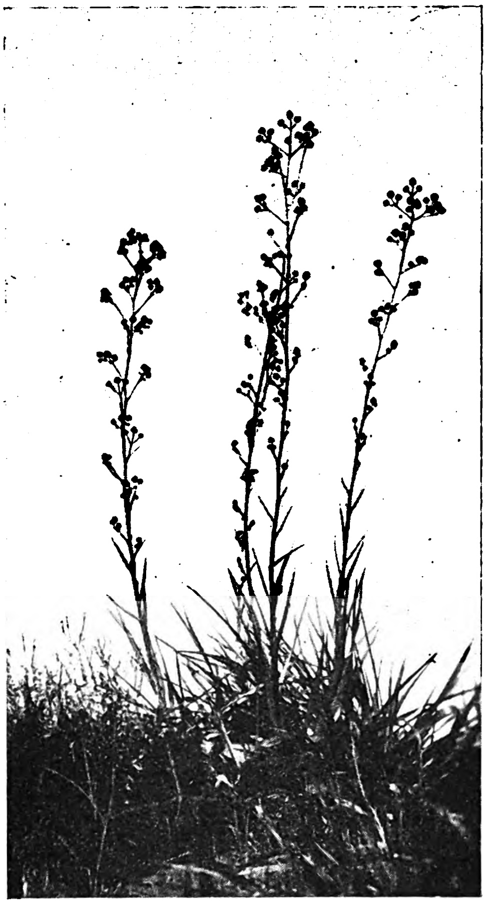

FIG. 89.—ERYNGIUM PANICULATUM.

Two species of Cactaceae are found here, one Echinocactus Ceratistes, "El Sandillon," rarely attains three feet in height by six or eight inches in diameter, and has numerous, small, rosy-carmine flowers, followed by red fruits, arranged around the growing point. The other, Cereus chilensis, known as "El Quisco," reaches so much as ten or twelve feet tall by about four inches in diameter and branches freely, forming numerous parallel stems. This species has white flowers, produced from the sides of the stems, and round, green fruits rather larger than a golf ball.

It is interesting to note that two widely different genera, botanically, Cereus and Euphorbia, remarkable for their similarity of habit, or as it is called, "Parallelism of Development," are here found together. However, there is no similarity between the individual species. The Euphorbia grows almost prostrate, with freely branching, fleshy stems, the growing shoots bearing linear or slightly obovate leaves about an inch long, and fleshy, black bracts.

Four species of Loasa are common here, all interesting as regards structure; three are annual and trail among the shrubs, often covering them; while the fourth is perennial and sends up an erect, stiff inflorescence with curious green, although rather insignificant flowers and equally curiously twisted seed vessels. The most vigorous grower, L. tricolor, is a rank weed, and possesses violent stinging hairs in profusion; the flowers form a beautiful colour contrast in scarlet and orange, and a similar but smaller species, equally as objectionable, has white flowers with gold and orange centres. Loasa artemisiaefolia (?) climbs by twining stems and covers large areas; it has fairly large orange flowers, each petal having the hollow, pouch-like form peculiar to this family.

A plant which, seen without its inflorescences, would deceive an experienced botanist, is Eryngium paniculatum (Fig. 89). The hard, parallel-veined, linear leaves, a foot or more long, are packed in dense rosettes, well-armed with spines and closely resembling a Dyckia or other small Bromeliad; indeed, it is only when the flowers are examined that one finds one is dealing with a Dicotyledon. Two species of Verbena also grow here in quantity, a mauve and a cream species, but although interesting, they are far inferior to the Verbenas of cultivation.

Here also grows Schizanthus pinnatus by the acre; in fact, on some of the slopes it is close enough to be mown with a scythe, and completely changes the colour of the landscape when in flower. Another plant, equally as prolific, is Lupinus microcarpus, which grows barely a foot high and is violet in colour. An interesting annual sometimes found in gardens is Schizopetalon Walkeri, a native of these sand-dunes. Typical of its family, Cruciferae, it is, as its name implies, conspicuous by its curiously cut petals.

I have only noticed one species of Calceolaria on these sand hills, and this prefers pockets or steep slopes, where it forms large rosettes of leaves, flat against the surface, in a similar manner to Ramondia, throwing up in spring or early summer strong inflorescences a foot or so high of a good deep yellow colour. Another common annual is a white Triptilion, which lasts indefinitely when cut. It is very near the blue T. spinosum, but not nearly so good, and differs in that the latter is perennial.

Monocotyledons, especially those with bulbous or tuberous roots, form a large proportion of the flora of these areas. From a purely decorative standpoint, the best flower is Leucocoryne ixioides, "El Huilli," a bulbous Liliaceous plant common on the sand hills, although not confined to them. The flowers are picked in quantity, and command a ready sale in the towns. The mauve flowers are borne in simple umbels, some three or four inches across, on thin, wiry stems, a foot or more high, while the bulbs are frequently as much below the surface.

Another bulbous plant which is very common is a greenish-yellow Amaryllidaceae, probably Hippeastrum species. There are many other species of these two families, not bulbous, and among them is an Alströmeria which does not grow more than eight to twelve inches high and has bright rose and yellow flowers; and a small, but curious Liliaceae with oval, fleshy roots. This plant, Trichopetalum stellatum, grows about one foot high, producing greenish-white flowers in which the three inner perianth segments are covered with white, hair-like excrescences; these give the flower a curious, furry appearance.

Common on the sand hills also is Herreria stellata (?), a small, trailing plant, generally prostrate, but sometimes climbing by twining stems. It has tubers generally about one inch long by half-an-inch top to bottom, from which are produced the thin, twisted stems, bearing lanceolate leaves about one-and-a-half inch long. It is dioecious, the flowers, on both male and female plants, being green and inconspicuous, but the triangular, membranous fruits which follow the female flowers are large and brown. *G. W. Robinson.*

(To be continued).

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXIX.—UPS AND DOWNS.

TO our surprise, on reaching the village, we were greeted by Hubble, our truant interpreter, who had been shooed out of Denning by the Political Officer's orders, and having nowhere to go, had returned to us.

For the next few days the weather continued wet, but much warmer, the temperature never falling below 60°. Few people visited us, although we were still planted in the fields where women and children were hard at work pulling up weeds; in fact, every day, in every way, our unpopularity increased. Many of the men had left the village, some, it was said, for Tibet, others for the Lohit Valley. We could buy almost nothing, and our rations were running low. Something would have to be done soon, or we should be driven out of this inhospitable valley by sheer want.

After the middle of July the weather turned fine and exhaustingly hot for ten days, temperatures ranging from 62° at night to 92° by day; there were frequent thunderstorms in the mountains, but most of the rain fell during the night. The damp heat and teeming insect life made the preserving of specimens very difficult, and much time had to be devoted to saving the collections already made, before adding to them.

The deep ravines which scored the slopes all around us were filled with small trees and bushes, among which were flowering species of Saurauja; a big, scented, white Jasmine; Mussaenda, and a compact, brassy-yellow-flowered Hypericum. On the cliffs, and in the beds of larger streams, grew herbaceous plants, species of Hedychium, Chirita, Lysionotus, Torenia, Lysimachia and a Commelina with small but intensely blue flowers; besides Anemone vitifolia, Campanula colorata, and a pink-flowered Begonia, with fine foliage and in the autumn bunches of scarlet fruits. I had collected seeds of this Begonia in the Seinghku Valley at 7,000 feet, but later in the year I found it growing in the Delei Valley at over 8,000 feet. All the same, I doubt if it is hardy.

I also made two excursions up the ridge and into the temperate rain forest above, passing each time through the leech belt, by no means unscathed, although the leeches were not such a pest in the valley as I had expected to find them. Now that the Rhododendrons were over the rain forest was very gloomy, although cool and pleasant on a fine day. There were few flowers. Just as the alpine region, light and airy, is for a short season characterised by an unparalleled wealth of brilliantly coloured flowers, so the forest, morose and dark, is distinguished by an overwhelming display of foliage. In the one, everything is sacrificed to the best possible display of the reproductive organs; in the other it is the vegetative organs which reach their greatest expansion.

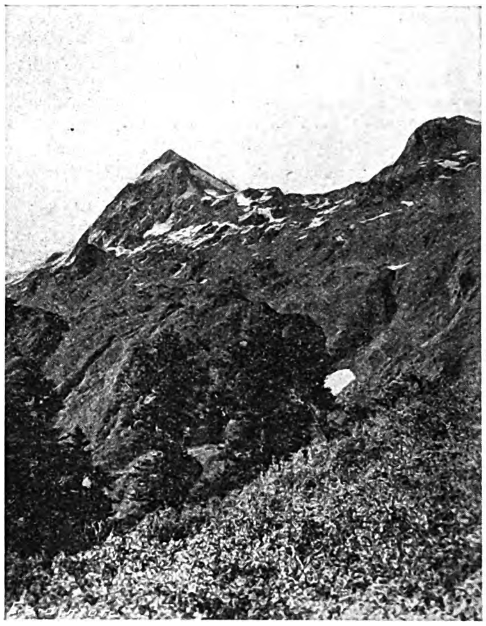

FIG. 90.—KASO: THE ELUSIVE PEAK.
15,100 feet high; the final ridge.

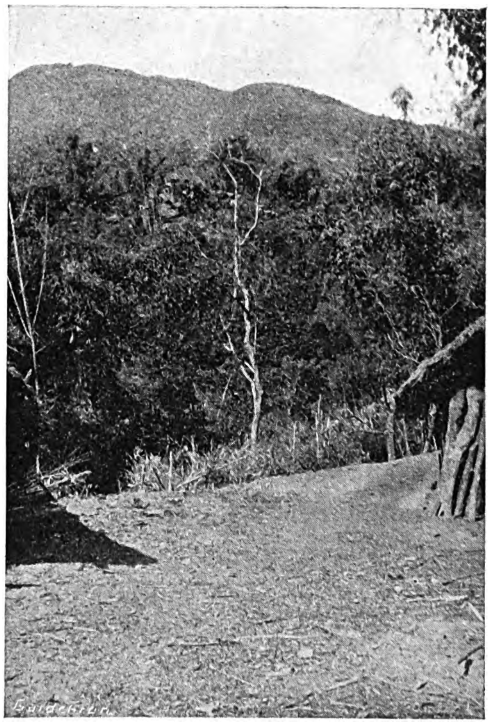

FIG. 91.—VILLAGE JUNGLE.

In the forest, plant competes with plant, and a measure of the slaughter is given by the number of dying and dead trees, and by the vast number of seedling trees which may be observed springing up everywhere to take their place—Rhododendrons, Acer, Magnolia, Abies, Tsuga, and many more. In the alpine region each plant competes rather against a grudging and, indeed, hostile Nature.

In the latter half of July, a bright yellow Begonia was flowering in the lower forest; a yellow-flowered Zingiberaceous plant, which grew on rocks; and a few ground Orchids. From the trees hung streamers of a leathery-leafed Aeschynanthus, its scarlet flowers striped with orange. I searched for the Butterfly Violet, but the plants were by this time so swamped by the undergrowth that they were very difficult to locate. Nor did the difficulty end there. Violets scatter their seeds by a spring-mechanism, with considerable force, and the first indication one gets that the seeds are absolutely ripe is usually an empty capsule; what one seeks is a capsule the carpels of which have just separated, but not yet been sprung. That, however, was not the worst of it, for I found that an enormous proportion of the ovules had been born with eggs in them—insect eggs, each of which had turned into a grub, consumed the embryo, and eaten its way out, leaving only the husk. But I was determined to get a few seeds of this fine Violet, and eventually I was successful. Furthermore, Colonel Enever Todd's interesting "Revision of Violas" published in *The Gardeners' Chronicle* (March 26, 1927, to July 7, 1928), had quickened my interest in the genus, which, hitherto, I had rather neglected, so that eventually I secured seeds of three other species, including two yellow-flowered alpines.

We had now to decide on some plan of action. The Mishmis refused to take us anywhere except down the valley, and the only alternative seemed to be to stay where we were. But our camp was badly situated, and if we returned to Camp III, a day's march southwards, there was at least a chance of reaching the Alps from there, since the Gam was friendly. I hoped to return to Tablekon in September, although I had a shrewd suspicion that every step down the valley would be permanent; my forebodings proved correct, for the Tablekon Mishmis, having at last rid themselves of us, threatened horrible reprisals on the Meiliang Mishmis if they dared to bring us back again!

But there was another consideration. We *must* send an S.O.S. to Sadiya for supplies, and as no Tablekon coolie would carry a letter to Denning, we had to find a man at Meiliang who would, those people being more accustomed to the journey. Besides, we were doing no good at Tablekon, and the prospect of sitting in that dismal camp for two months was not pleasing. Taking one thing with another, therefore, we decided to return to Meiliang and make another assault on the Delei-Dow divide from that direction. On July 21 we sent off half the loads, and next day we followed with the remainder; it was grilling hot, the path was completely hidden by the rank vegetation, and we arrived exhausted. However, we were now settled in a more comfortable camp, and a messenger was found to carry a letter to Denning.

Shortly after our arrival, the fine weather broke up and it rained sulkily for days on end; but during a series of short excursions I collected various Orchids, including the orange Dendrobium fimbriatum; a magnificent Hedychium with a 'bottle-brush' of vermilion and yellow flowers; Costus, Clerodendron, climbing Bauhinia, Sophora, Desmodium, Sambucus javanica, and more species of Saurauyja and Begonia. We made two long trips up the ridge we had climbed in April, to look for a suitable camping ground. This ridge, from a height of about 9,000 feet, runs due east to join the Delei-Dow divide, on which Kaso peak (Fig. 90) stands; but now there was another lower peak between us and Kaso. As usual, the trouble was—no water on the ridge—so we rigged up a tent-cover and a canvas bath to catch the rain.

Meanwhile, we were trying to persuade the Mishmis to carry a camp up for us. Sometimes the Gam was friendly, and promised to find coolies; sometimes he was indefinite and hostile. Sometimes the villagers visited us in embarrassing numbers; sometimes they gave us a very wide berth for days. One moon-lit night we

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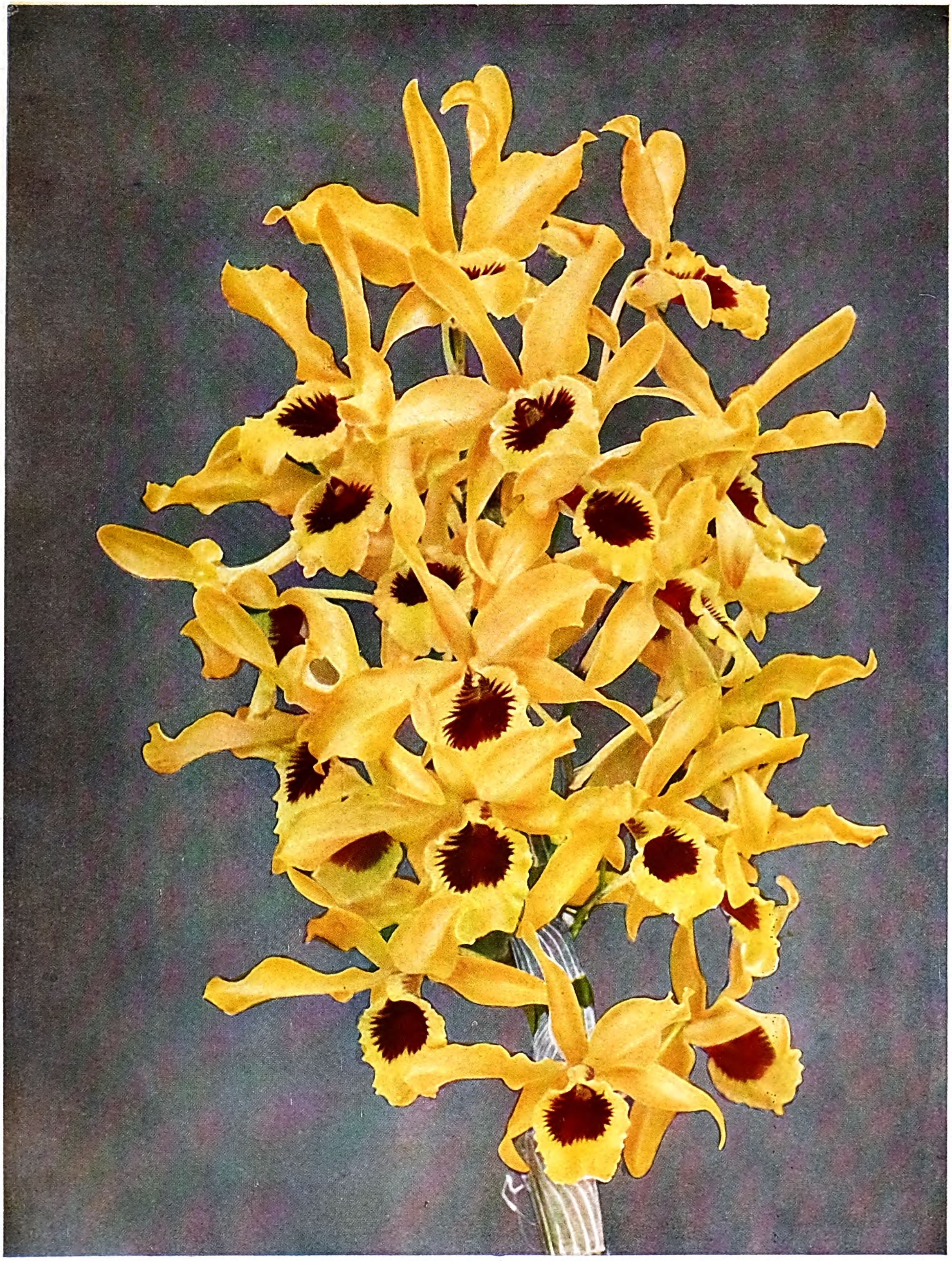
* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24, 1929.

Supplement to "The GARDENERS' CHRONICLE."



DENDROBIUM THWAITESIAE.

were visited by thieves who got away with a few things left lying about; we awoke to see the last of them making good his escape, but the discharge of a gun in the direction of the fugitives discouraged further larceny.

The Mishmis are, in fact, great thieves, and rob each other with as little compunction as they rob strangers. But they have no stomach for a brazen hold-up; petty larceny is their strong suit, and they would lurk round the cooking *basha*, trying to sneak cooking pots when the cook's back was turned, as a dog steals bones. We lost several pots and waterproof sheets from time to time, but such losses were not serious.

At last there came a crisis in our affairs; the Gam, who had not appeared for several days, sent word that the coolies would not take us up the mountain! Finis! We might as well pack up and return to Sadiya as sit here indefinitely. We had done our best, but we were dependent on the Mishmis for transport, and if they would not take us anywhere except down the valley, we were helpless.

Next day I sent for the Gam, to tell him that as he would not help us, we would return to Sadiya. He appeared to be in a good temper again, so I made a last desperate throw, as it seemed, having little hope left. "Why won't the Mishmis take us up the mountain?" I asked Hubble, "they said they would!" He affected surprise. "If you order the Gam to get coolies Sahib, he will do so!" I called the Gam. "Now," I said, "tell him once more I want twenty-five coolies to go up the mountain; its an order." This was translated, and the Gam promised the coolies! Then I asked for fifteen coolies to come next day and move the baggage which would not be required on the mountain, down to the village a mile away, where it was to be stored against our return; and they also were promised—and came next morning. At last things were moving again.

Still no news of our supplies; although the messenger had been gone nearly three weeks, and we were all on short rations. It seemed rash to go up the mountain with only a few days' food in hand, but now was the time to go, before the Mishmis had time to change their minds again. Also another fine spell of weather was upon us, so the start was fixed for August 17. It rained during the night of the 16th, which was just what we wanted to fill our reservoir, but the 17th was fine and hot, and the coolies were able to climb the steep path. We reached our camping ground late in the afternoon, only to find the reservoir empty, the water having leaked away or evaporated. Luckily, we had brought up a petrol tin full of water, sufficient for our immediate needs. *F. Kingdon Ward.*

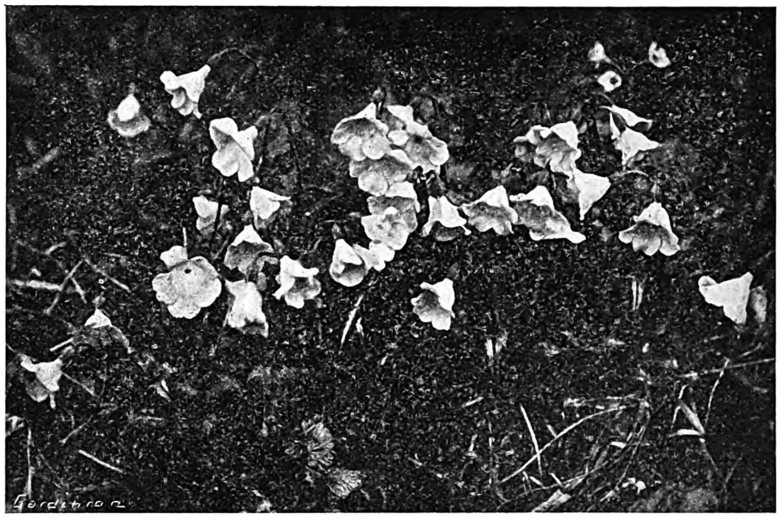


FIG. 93.—THE GAMBOGE PRIMULA AT 13,100 FT. ALTITUDE.

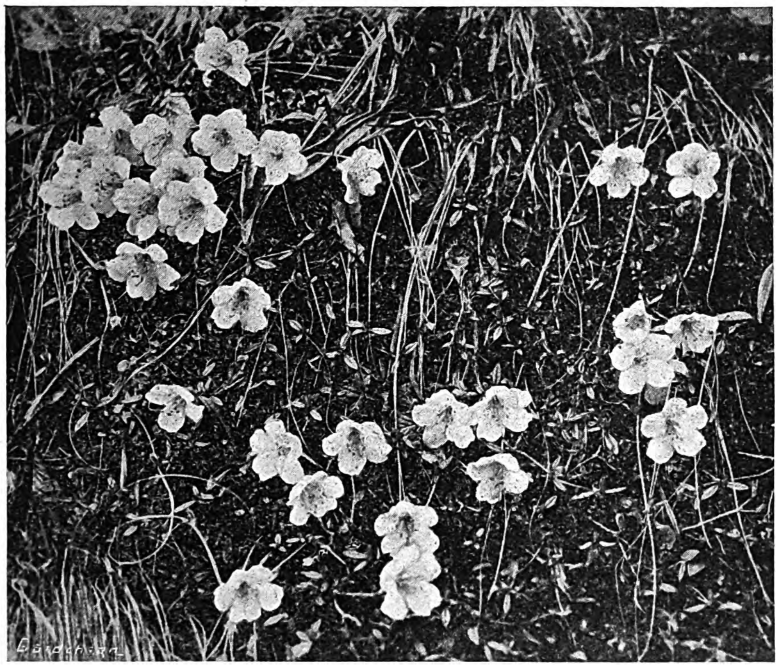


FIG. 92.—RHODODENDRON ROCK ROSE.
A beautiful dwarf, creeping species.

PROBLEMS OF PLANT LIFE.[*]

VII.—Leaves and their Functions.

It is a matter of common observation that plants are either deciduous or evergreen. There is a border line, where we find certain evergreens tending to become deciduous, or deciduous plants taking on the evergreen habit. Such plants, like the animals which link up different genera and orders, have a special interest for the light they throw on the problems of life. While our problem at present relates chiefly to the deciduous types, and to the fall of the leaf, we shall find it of value to study the laws which regulate the life of the evergreen as well. Generally, it may be stated that, so far as trees and shrubs are concerned, the leaves of evergreens are much thicker, more coriaceous, smooth, succulent and poisonous than those of the other group of plants. It is easy to account for this.

For the most part leaves are to plants what the nutritive system is to animals. They act chiefly in two ways, taking in carbon dioxide from the air, and drawing up water from the soil. From the air carbon is obtained which serves as a plant food, while water is essential to the plant because it gives it turgidity, holds salts in solution, and responds to the action of the leaves under the influence of light. It is natural to ask why the majority of plants which are found in temperate regions are deciduous, and it is reasonable to assume that the answer is to a large extent to be expressed in terms of temperature. Given a sufficient and equable supply of heat and moisture all the year round, the evergreen condition becomes possible. Let the temperature fall low, and the ground, periodically, become very hard and dry, and the leaves may be expected to fall. That, roughly speaking, is what we find, but the law is not universal, and there are interesting anomalies which call for investigation.

Let us take the problem of the fall of the leaf. Why do leaves fall? The reasons are numerous. The most casual observation shows that leaves tend to fall whenever the supply of soil-moisture runs low, or when, in spite of an adequate supply, loss of heat is not made good, as occurs in the autumn when the sun is low. Now, simple as all this seems, a little investigation shows the complexity of the laws which govern growth. Suppose, for example, that the air is sufficiently warm to cause the leaves to transpire freely while the roots fail to act through cold or dryness of the soil, the water supply will soon fall short and the leaves dry up, droop or fall. Healthy plants will tend to respond to these conditions, with the result that they shed their leaves automatically in preparation for the season when such conditions occur. In autumn the soil cools, the plant fails to keep up the supply of moisture necessary for an evergreen condition, and a deciduous habit is produced. It reminds one of the hotel keepers who close down at the end of the season, to open again when there is a prospect of making a living.

But while the fall of the leaf is, in the main, due to the failure of the water supply through drought or cold, the whole of the phenomena are not thus explained. Some plants, for example, retain their leaves even when they have ceased to function, and everyone has noticed the Oak or Beech which has been trimmed, cut down or pollarded. The leaves will often remain until well into the next spring. It is the same with some evergreens if injured during the winter by severe frosts. And this leads to the observation, first, that native evergreens are few, and secondly, that such as occur in this country usually have small and specially protected leaves. Thus we learn that leaves are often shed as a protective measure. If our trees and shrubs normally produced large leaves which did not fall in autumn they would be subject to much trial from wind, frost, snow and other injurious meteorological conditions, and would have an enormously intensified struggle for existence. This is proved in severe seasons by the heavy toll that is taken in shrubberies among such plants as Laurels and Aucubas.

It would be of interest at this point to take up the problem of winter in relation to the functions of leaves, and enquire how the balance between the oxygen and carbon dioxide is maintained when the trees are leafless. But that is too large a subject to be treated here, and calls for separate consideration.

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[*] Previous studies appeared in our issues of April 13 (p. 279), June 15 (p. 446), Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71) and August 17 (p. 130).

In deciduous trees the method adopted for shedding leaves has been often explained. It acts automatically in autumn, and is carried out with such care that no bleeding follows, and no open wound is left for the entrance of disease germs. Thus we come to a brief review of the economics of deciduosity. It is evident that the fall of the leaf is of prime importance in the economy of plant life. Let us take one or two of the more important points.

By the fall of the leaf the tree or plant is enabled to rest during that season of the year when it would be most difficult for it to obtain the necessary supplies. A word of caution, however, is here necessary, since certain hardy plants are able to grow during the late autumn and winter in spite of frosts, hardened soil, and a restricted water supply. Certain cereals, for example, are known to exude drops of water while standing in frozen soil or placed in snow with the temperature at zero. Interesting facts in this connection have been placed on record, and may be found in the memoirs and monographs of specialists.

The fall of the leaf saves the plant from many risks. If there is a heavy snowfall when the tree or shrub is covered with dense foliage, the weight often proves too great, and considerable injury results. High winds tear off the leaves, twigs and branches, and thus cause much damage. Frosts are extremely injurious to evergreens, while deciduous plants may escape unharmed. It is of further benefit to the tree that the leaves should fall, since light and air can thereby reach new shoots and young foliage. These can absorb the nutriment which is thus available and so growth is stimulated.

Add to all this the secondary effects of the fall. These are mainly two-fold. In the first place the fallen leaves protect the roots in severe weather, reduce the rate of evaporation and radiation, conserve the supplies of moisture and warmth, and so prevent the plant from suffering as it otherwise would. Here we are thinking of plantations, woodlands, forests and shrubberies, where the leaves are allowed to accumulate as they fall. Next, such masses of decaying vegetation form new humus, and by returning the unused salts which have accumulated in the leaves during previous seasons to the soil, keep up a supply of nutriment and prevent soil exhaustion.

It hardly needs to be stated that the foregoing notes are intended to be suggestive rather than exhaustive. So much special work has been done in the field and in laboratories at home and abroad during the present century that one who wishes to go more fully into the subject has only to consult one of the recent text-books and follow up the matter along the lines usually suggested in the appended Bibliography. *Hilderic Friend.*

NOTICES OF BOOKS.

Fruit Culture.*

In his introduction to this book the author states that it is intended to solve some of the problems which worry the beginner. A work having this object should be both modern and correct. Unfortunately, this one cannot claim to be either. Although it is a new edition, it contains a good deal of matter which is quite out of date. Still more unfortunately, the information is so often wrong that the book is robbed of any value which it might otherwise have had. A few of the mistakes, taken at random, will suffice to show that the volume is unworthy of serious attention.

One of the subjects on which the amateur should have modern guidance is that of the best stocks for trees intended for garden culture. All that is offered here is the remark: "The stock generally chosen for the Apple is the Paradise, a species of Crab, and for the Pear, the Quince." From this the beginner might imagine that there is only one type of Paradise, and that it is much the same as the Crab. The subject of pollenation is muddled and evidently not properly understood by the author. He seems to think that only self-fertile varieties are of value for pollenating others, and that self-sterile varieties are useless for this purpose. He is also under the impression that such subjects as Apples and Pears are capable of being wind-fertilised. "The wind may scatter the pollen widely," he writes. The directions for pruning are far too meagre to be of any real assistance to a beginner. The shoots of a newly-planted tree, we are told, "should be shortened sufficiently to cause some of the buds near the base to break in spring." The novice is left to guess how hard he must prune to bring about this result. A standard is described as a bush on a tall stem, requiring exactly the same pruning as a bush; and an illustration of a pruned standard shows the tree closely spurred and severely thinned, in a way which would certainly delay its bearing for a good many years. "The ordinary cordon," is described and illustrated as having two horizontal branches, one on each side of the stem, about two feet from the ground.

The chapters on pests and diseases are even more freely sprinkled with errors. Hairy caterpillars, we are told, form the greater part of the tissue-feeding class, a statement which seems to ignore the winter moth and various tortrix larvae, which are far more numerous and harmful. To combat these caterpillars the old Paris green is recommended, no mention being made of arsenate of lead, which superseded it years ago. For sap-sucking insects the unfortunate reader has the choice of a very strong soap solution (at the rate of 25 lbs. per 100 gallons!) or a paraffin emulsion which would undoubtedly do much harm to the foliage. Nicotine is not included! No mention is made of tar-distillate wash, the only winter wash described being an out-of-date caustic soda, crude potash, and soap mixture. Fruit-growers would be glad if it were possible, as stated, to eradicate Apple blossom weevil by the use of this wash in winter. The formula given for Bordeaux mixture includes 2 lbs. of copper sulphate in ten gallons of water, or more than double the strength of the normal 8-8-100 formula, which itself is stronger than most growers dare to employ. *M. G.*

Consider the Lilies.*

The publication of a second edition of Mr. W. E. Marshall's book, *Consider the Lilies*, which is a treatise on Lilies and a trade catalogue in one, is at once a tribute to the keen interest taken in these plants by American gardeners of recent years and to the author's enthusiastic advocacy of their cultivation as garden plants, an advocacy which has helped materially to arouse and maintain that interest.

Since the book was first published the Introduction has been revised and it now covers a good deal more ground than the first edition in regard to the preparation of the soil for Lilies, the time for planting bulbs of the different species, the situation in which each is likely to thrive, and so on. The author disregards the oft-repeated view that Lilies are none the better for stimulants, and like others before him, finds that although all the manurial value might be supposed to have vanished from it, there is no stimulant like old stable manure. He quotes an experiment made by a Lily grower, who, noticing that the leaves of some healthy plants of L. auratum were inclined to turn yellow when they should have remained green, dosed them with iron salts, with the happiest results.

Among such interesting matter, seldom found in a catalogue, there are practical hints on the propagation of Lilies from seeds, scales, bulblets and bulbils, and on the use of ground covering for the stem-rooting species; and, inevitably, these hints apply with more force to American gardens than to those in this country.

The author acknowledges his indebtedness to our columns, and quotes at length from them where the context is appropriate. The book is copiously illustrated in colour, and we can recollect no trade catalogue of plants in general, still less of Lilies in particular, which approaches it in the mass of illustrations. That they are not all of equal merit, goes without saying, and where the reproduction of plant photographs by three-colour process is concerned, there seems to be the same difficulty in the United States as there is here in ensuring that the printed colour shall even approximate to that of the natural tint.

GARDEN MANURES FOR SEPTEMBER.

With the advent of September the use of that large selection of relatively quick-acting fertilisers which are so helpful to cultivators during the active period of growth becomes definitely restricted, and attention is diverted more to the preparation of the soil for future crops than the direct supply of nutriment to those nearing maturity. And while it is of the utmost importance that the uses and effects of these quick-acting fertilisers should be closely studied, if maximum results are to accrue from their application, it is equally important that a wide outlook should be taken in the use of that even larger group of relatively slow-acting manures, most of which are best applied and many of which can only be applied during the more dormant season.

From the plant nutrition point of view, the division of these groups is rather one of convenience than reality, for the final result is to render available for the nourishment of the plant all those elements necessary to its maximum development; but, whereas the application of stimulating fertilisers during active growth is largely confined to minerals used as top-dressings, which are carried down to the feeding roots by water, the preparation of the soil during the dormant season embraces the use of that large group of bulky organic manures which is the basis of all good cultivation.

The relation between physical cultivation and manuring has been discussed frequently in these pages, but at the beginning of another season of soil preparation for future crops, it may not be out of place to emphasise once again that not only is thorough incorporation with the soil of added ingredients an essential factor if maximum results would be obtained, but also that full results cannot be obtained from the application of quick-acting fertilisers in next year's period of growth, unless previous physical preparation is thorough. It is obvious then that in the preparation of soils from now onwards much forethought and judgment is necessary, for this factor of thorough incorporation and physical preparation is only possible when the ground is crop-vacant, and in carrying out this work during the dormant season a network of tiny channels is being effectively laid to act as express delivery of those quickly soluble fertilisers which we can so profitably use during the active growing season.

At the present time much new development work will be contemplated in many gardens, which entails the preparation of sites and the use of various manurial ingredients. Probably the most pressing of these is the sowing of grass seeds for new lawns. The sites for these should have been prepared some time ago, to give the whole mass time to consolidate and in some cases seeds may be already sown, but early September is quite a good time to complete surface preparation, and on light, sandy soils where a deficiency of potash may be suspected, a dressing of sulphate or muriate of potash at the rate of about one hundredweight per acre, affords a ready means of making good any probable deficiency and may materially assist growth so soon as the seedling plants have established themselves.

Other works of preparation which call for attention at the present time are the making of new Rose gardens, the preparation of sites for planting fruit trees and the transplanting of trees and shrubs, particularly evergreens.

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* *Fruit Culture*, by H. C. Davidson, Garden Editor of the *Daily News*. London: John Lane; pp. 142. Illustrated. Price 3s. 6d.

* *Consider the Lilies*, 2nd edition. W. E. Marshall and Co., Inc., New York, 1929. Price not stated.

In all these works the manure problem presents itself immediately, and in all cases the use of some type of bulky, organic manure is desirable. Farmyard manure naturally claims attention for these purposes, and although it is not quite free from the objection that some loss of nitrogen may occur before plant growth can absorb it, this disadvantage is at least compensated by the fact that under present soil conditions its thorough incorporation with the soil is easy, and in digging or trenching operations uniform distribution through the mass is assured, and the danger of losses through denitrification minimised.

Among other manures supplying the same plant foods, which are very slow in action and consequently suitable for use in present soil preparations, shoddy, feathers, horn and hoof refuse, and sewage sludge may be mentioned. These constitute excellent organic manures, the nitrogen content of which becomes liberated gradually, and the cellulose material decomposes slowly to form humus for future bacterial work. Such manures, and also ground bones, are extremely valuable for mixing with the soil when preparing for the planting of hedges, fruit trees, and other permanent trees, owing to their slow process of decomposition, with the result that food supplies are provided over a very long period, a great consideration where permanent plants are concerned.

Of the mineral manures which may be used with advantage at the present time, basic slag may be mentioned as the most important for the supply of phosphorous, and its use in conjunction with any of the above mentioned manures may be considered. Generally speaking, farmyard manure and similar bulky manures are not particularly rich in phosphates and addition by means of a mineral phosphate becomes necessary in some soils. Wherever its use is considered desirable, however, it should be applied to the surface after digging or trenching is completed, as owing to its extremely fine state of division and its heavy nature, it is soon carried down to a considerable depth. Originally introduced as a refuse from the Bessemer steel process, basic slag at one time contained so much as forty per cent. of phosphates, but the process has now been superseded by the open-hearth process, and present day slags seldom contain more than thirty per cent. of phosphates, and some of them as low as eighteen per cent., so that in giving a present day low-grade slag it would be necessary to apply approximately double the weight of the earlier high-grade slag to achieve the same results. Besides the provision of phosphates, slags also give a fairly high percentage of lime and this tends to maintain the lime content of the soil, but it should in no case be considered as an efficient substitute for lime. *W. Auton.*

FRUIT GARDEN.

ORDERING FRUIT TREES.

THE chief point to remember in connection with the cultivation of hardy fruits is to grow the right kinds and varieties, which have been worked on stocks most suitable for the purpose for which they are intended. One great drawback to fruit culture in the past has been the time that must necessarily elapse after planting before a return can be realised. According to the older methods, it was useless to expect anything like a profitable return from the fruit trees for at least eight or ten years after planting. Modern science and practice have, however, done much to alter this, for by the use of approved dwarfing stocks a great change has been accomplished in modern fruit culture.

A visit to a good fruit nursery at this season of the year is always interesting and instructive. There, young trees of both old and new varieties may be seen growing in quantities, and their merits compared, for such a visit will reveal not only the various forms in which the trees are grown, but the varieties and the root-stocks on which they are worked.

In purchasing fruit trees, the fruit-grower should deal only with nurserymen of good repute—those who realise and appreciate the importance of the relation of the tree and its fruits to the rootstock, and who can not only supply the varieties true to name, but also guarantee the stock on which the trees are grown.

Fortunately, the root-stock question is no longer the haphazard business it once was, thanks to the research work carried out at East Malling Research Station, Kent, and to the co-operation of our fruit tree nurserymen in selecting and propagating. There ought now to be less risk, if it is always borne in mind that two economic interests are concerned—the gardener's and the nurseryman's. The immediate interest of the fruit-tree nurseryman rests in securing stock that is cheap, that makes a good union when budded, and that makes a marketable tree quickly. But there is more than the immediate interest at stake, for the disposal of trees that do not give satisfaction to the planter is, in the long run, not conducive to a good business reputation, and so the nurseryman employs his knowledge of the proper use and selection of root-stocks, and his skill as a propagator to the mutual advantage of both parties.

"Quality will be remembered long after the price is forgotten," is the avowed maxim of a certain famous business house; so let the gardener meet the producer half way and be prepared to pay a fair price for a fair article, for it must be remembered that the responsibility does not rest with the nurseryman alone, for so long as we growers stand out for the so-called cheap tree, ignoring real value, the nurseryman is forced, against his better judgment, to take the line of least resistance and offer cheap trees, finding difficulty often in selling better quality stuff.

Before gardeners order new trees, it is important they should decide exactly what they want, and then give their orders in good time. It will be of the utmost assistance to the nurseryman, and it may prevent buyers from being disappointed at finding all the best stuff gone. The gardener must also decide the size, form, and age of the trees he is going to purchase. Some gardeners like to form their own trees from the start and, therefore, buy maidens. Others prefer to purchase three- and four-year- old stuff on which the initial framework has been started, with the idea of obtaining some return in less time than from younger trees. But the younger the tree, the less disturbance it suffers in transplanting, and the more readily it re-establishes itself. *H. H. C.*

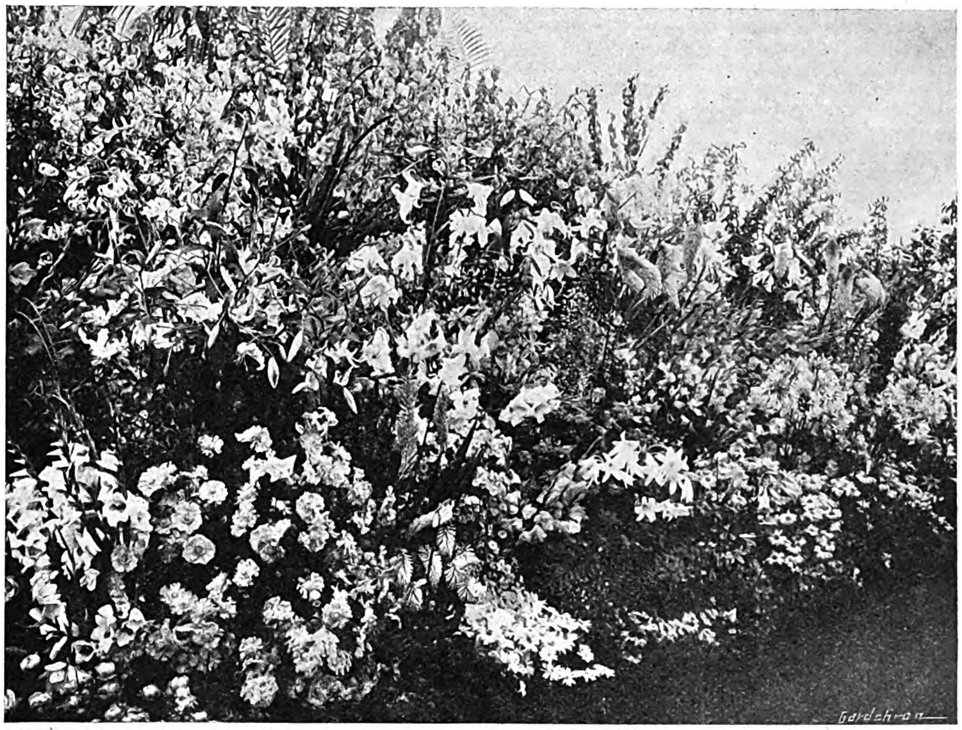

FIG. 94.—SOUTHPORT SHOW: MESSRS. BEES, LTD.'S EXHIBIT OF HERBACEOUS FLOWERS, etc. (see p. 191.)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

(Continued from p. 170.)

HERTFORDSHIRE.—The fruit crops, generally, are quite up to the average. Apples are very good, especially on orchard trees; such varieties as Lane's Prince Albert, Blenheim Pippin, King of the Pippins, Bramley's Seedling, Keswick Codling and Lord Derby are carrying very heavy crops. Pears are carrying smaller crops than usual, but the quality appears to be good. Owing to the severe frosts, Plums are much below the average although the trees flowered profusely; the Plum trees on walls, however, have a good crop of splendid fruits. Cherries are a full crop, and the fruits are of fine quality, both sweet and Morello varieties. All kinds of small fruits, especially Black Currants, have been plentiful and good. Strawberries, I am glad to state, have been the best crop for years. The soil here is of the tenacious London clay. *Edwin Beckett, Aldenham House Gardens, Elstree.*

—— Our Apple crop is very disappointing. Pears, Plums, Damsons, Cherries, and all small fruits are good, with the exception of Strawberries, as the hard winter killed most of the latter. The soil in these gardens is rather heavy, the subsoil being of gravel. *John Dewhurst, Gilston Park Gardens, Harlow.*

LEICESTERSHIRE.—After a very late start, most fruit trees opened with a good show of bloom, but the Plums were cut off by late frosts. Apples, in my opinion, suffered through the dry state of the soil for the time of the year, the result being only an average set, but the fruits are of a very clean and healthy appearance. Stirling Castle and James Grieve are carrying good crops. Peaches and Pears are also bearing splendid crops of good, clean fruits, and small fruits were exceptionally heavy. The Strawberry crop was light, but not so poor as might have been expected considering their appearance early in the spring, when it was almost impossible to find a green leaf. The soil here is more on the light than the heavy side, and of a good depth, on gravel. *M. L. Garrett, Misterton Hall Gardens, Lutterworth.*

—— At the time of writing, fruit crops here are well up to the average, except Strawberries, which have never recovered from the severe winter and prolonged drought since. All crops appear remarkably clean, but would benefit greatly by copious rain. The soil here is heavy. *David Thompson, Whatton Gardens, Loughborough.*

Northamptonshire.—Considering the season, fruit crops in these gardens are good, with the exception of Apples and Plums, the crops of which are very thin. Plums blossomed profusely, but severe frosts on April 21 and 22 destroyed the prospects of good crops. Peaches on a south wall are carrying excellent crops, and the trees are clean and healthy. Raspberries are a very heavy crop, but late in ripening. Strawberries had to be afforded copious waterings, but the results well repaid the labour, a good average crop of excellent fruits being obtained. Sir Joseph Paxton is our best maincrop variety. *F. W. Gallop, Lilford Gardens, Barnwell, Peterborough.*

Oxfordshire.—This fruit report is the average of about fifty centres in the county. With few exceptions the Apple crops are either average or under, but mostly under. The best croppers are Bramley's Seedling, on heavy soils; Lane's Prince Albert, Golden Spire and James Grieve on ironstone and light soils. Apples on heavy soils are about five per cent. above average, while on the light soils they are twenty-five per cent. under. Pears on heavy soils are average, but on light soil twenty-five per cent. under. Plums are under average on all soils. Cherries are average crops on limestone brash, but under average on all other soils, except Morellos on ironstone, which were an average crop. On the heavier soils the Apricots, Peaches and Nectarines have done better than on the light soils. With regard to small fruits, Gooseberries were under average on all soils, except clay. Currants were over average on most soils, the outstanding exception being Black Currants, which were twenty per cent. under average on ironstone soils. Strawberries on all soils except clayey or heavy loams, were under average. *Samuel Heaton*, 38, *Botley Road, Oxford.*

—The fruit crops in this district are much below average, particularly Apples and Plums, which are a failure in this garden. This is due to the cold winds and sharp night frosts during the setting of the bloom. Pears on walls are a fair crop and swelling well; the same applies to Peaches and Apricots outside. Gooseberries, Currants and Raspberries have cropped heavily. Strawberries set a fair crop, but the fruits were small owing to the prolonged drought. Caterpillars on Apples and Plums have done a lot of damage in spite of repeated spraying. The soil here is a thin and light loam, on limestone brash. *Ben. Campbell, Cornbury Park Gardens, Charlbury.*

—— The fruit crops, which looked promising at the flowering stage, owing to the late frosts are very disappointing. Among Plums and Peaches, some trees have average crops, but others are barren. Pears and Apples are an average crop, but the long spell of drought caused many of the fruits to fall. Black Currants were very poor; other small fruits were very good. Strawberries produced plenty of blossom, but late frosts completely spoilt them. The soil here is very light and sandy. *B. Elkington, Cotefield Gardens, Banbury.*

——The fruit crop, on the whole, is not all one might have hoped for, taking into consideration the amount of blossom the trees carried in the spring, but owing to the long period of cold, frosty nights a good deal of the unprotected blossom suffered, resulting in a lighter crop than was expected. The absence of insect pests this summer is very marked; I have not known so little in this district before. Small fruits have come out well, but all crops suffered through lack of rain. The soil is a heavy loam over blue clay. *Victor R. S. Gammon, Eynsham Hall Gardens, Witney.*

Staffordshire.—The fruit crops here compare very favourably with those of other years, except Apples. Some varieties are carrying a good crop, *i.e.*, Gladstone, Duchess of Oldenburgh, and Lane's Prince Albert. The early blooms on Plums and Pears on walls were killed by frost, but later blooms have resulted in a fair crop. Apples suffered most from insect pests; Plums and Pears are very clean. The soil here is a stiff clay, but is in a very friable condition owing to the severe winter. The garden slopes to south-south-west, and is well sheltered from south-west and east-north-east. Damsons, of which a lot are grown in this district, are a very thin crop, although the weather was favourable to setting. I have seen one good crop of Apples in this district, and that in a very exposed garden. *J. W. Miskin, Woodseat Gardens, Rocester.*

—— The fruit crops, on the whole, are very good, and they withstood the drought remarkably well. Among Apples bearing good crops are Bramley's Seedling, Irish Peach, Keswick Codlin, Lord Suffield, Red Astrachan, Cox's Orange Pippin and Annie Elizabeth. Pears have also done well in places, especially the varieties Marie Louise, Comte de Lamy, Doyenné du Comice and Hessle. Plums are very uncertain and in many places are a failure. Fruit trees generally are free from pests and are making good growth. Raspberries have done well. The soil here is gravelly, resting on a subsoil of gravel and rock. *Edwin Thomas Gilman, Hillside, Rugeley.*

Warwickshire.—There can be little doubt that the scarcity of the major fruit crops generally is due to the inclement spring, as not only was blossom ample but of good quality. Apples have suffered the worst, and in these gardens only one variety, King Edward, is carrying a full crop. Beauty of Bath, Irish Peach, Worcester Pearmain, James Grieve, Ribston Pippin and Rival are carrying moderate crops, but Bramley's Seedling, Bismarck, Lane's Prince Albert, Pott's Seedling, Lady Henniker, Peasgood's Nonsuch, Golden Spire and Cellini have few or none. The excellent position as regards Plums is undoubtedly due to wall protection, as bush trees standing only twelve feet away from the wall are carrying much smaller crops than those against the wall. Substantial thinning has been necessary on walls, however, with the following varieties:—Rivers' Early Prolific, Czar, Coe's Golden Drop, Jefferson, Kirke's, Monarch, Pond's Seedling, Green Gage and Victoria. Curiously enough, this position is reversed as regards Pears, bush trees at twelve feet from the wall carrying heavy crops while trees trained on the wall have few or none. The lightness of the Strawberry crop is not entirely due to frost, although a large number of the primary flowers were blackened in May, but largely to the fact that the rainfall during the four active months was abnormally low, the total being only 3·22 inches, distributed as follows: March, ·08; April, 1·04; May, 1·85; and June, 1·25 inch. The soil here is strong clay, overlying felspar rock, and is admirably suited to the cultivation of fruits. *W. Auton, Moreton Hall Gardens, Moreton Morrell.*

—— Owing to the prolonged drought in 1928, fruit trees in this district received a severe check, and in consequence flowered sparsely during the present year, except in specially favoured situations. Frost did some damage to Apples, Pears and Plums, but the "set" is, on the whole, proportionate to the amount of blossom the trees carried. Fruit trees generally are vigorous and healthy, and crops are entirely free from pests. Fruits, although not plentiful, are swelling satisfactorily, except in the case of Plums, which "ran off" badly on account of the drought and low temperature. Black Currants were the fruit crop of the year. Gooseberries have also been good. Strawberries were slightly damaged by frost, and the crops also suffered through drought. *Henry Dunkin*, 86, *Emscote Road, Warwick.*

—— The fruit crops in this district are rather disappointing. There was a good show of bloom on most trees, but a large percentage of the Apple and Plum blossom did not set, no doubt owing to the excessive drought of last season, followed by a dry spring this year. Fruit in exposed situations suffered very badly from sharp frosts at the end of May. Apples are a very light crop in this neighbourhood. *A. E. Moss, Billesley Manor Gardens, Alcester.*

(*To be continued*).

HOME CORRESPONDENCE.

A Charming Dwarf Annual.—In your issue of August 17, (p. 136) Mr. Emmett mentions three dwarf annuals as well worth growing. Might I call the attention of your readers to another quite as pretty and very little known so far as I am aware. I obtained a few seeds of it under the name of Felicia Bergeriana from a friend, who informed me he had got it sent from Spain. Nicholson describes two species of Felicia, both fairly tall and neither of them blue, so whether they are in any way connected, I have no means of ascertaining. The subject of this note is a charming little plant, not more than six inches in height, the foliage making neat mats on the ground and the flowers rising about four inches above. The flower suggests a small Agathaea coelestis, but of a far more beautiful blue. I sow it indoors and transplant the seedlings from boxes, but I am certain that on any reasonably light soil it might be treated as an ordinary annual. *J. Hill, Rosemount Gardens, Monkton.*

Fruit Trees for Ornamental Purposes.—From time to time, the question of planting fruit trees for ornament arises in the gardening press. It is surely not because their great beauty is unappreciated by the landscape gardener and others interested in the planting of public parks and private grounds. The glorious visions of the fruit trees in full bloom in the Cherry-growing district of Buckinghamshire, in the Wisbech district of Cambridgeshire, in the Vale of Evesham, and in certain districts of Kent—to mention but a few—are certainly such as to uplift the heart of man. There must be some underlying reason why such trees are not so used, and it may interest readers to seek the cause. The principal reason why, I think, they are not used in public parks is, that youthful human nature being what it is, it is not wise or expedient to put the temptation in its way to break off branches of flowers, or to damage the trees and surroundings in purloining the fruits. The mischievous propensities of youth are a great grief to public park keepers. Secondly, the trees possess no marked advantages over what may be termed the strictly ornamental sections of the genus Pyrus and Prunus. Pyrus (Malus) floribunda and its varieties give us quite a range of colour in flower and foliage from the pale pink form to the dark red variety atrosanguinea, which is not excelled in the fruiting section. Pyrus baccata in flower and fruit—the size of which offers no great temptation—furnishes a small tree or large bush. Pyrus spectabilis and P. Scheideckeri furnish double or semi-double forms. Pyrus Aucuparia provides a totally distinct effect, and the several varieties of hybrid Crabs, such as John Downie, and Siberian Crab, provide a wealth of bloom and foliage followed by a crop of fruits of very fine colour, abundant in quantity and excellent for jellies. Of Pyrus communis I am not acquainted with any ornamental form. In the genus Prunus, the nurseryman and plant-breeder have provided us with a distinct ornamental section also, and their value over the fruiting varieties need not, I think, be laboured. These ornamental varieties have been evolved from the common types at the expense of great labour, thought and research, and that they serve their purpose in the sphere of ornamental trees and shrubs in a better manner than the strictly "fruiting" varieties could not well be denied. The person, however, who plants a Catillac Pear for its fine foliage and noble fruits, a Pott's Seedling Apple for foliage effect or any other variety of fruiting tree for columnar habit, striation or colour of bark, etc., should not be accused of want of good taste or lack of the aesthetic spirit, but be given credit for a particular appreciation of beauty in a special form. The reasons advanced against the public planting of fruiting varieties does not apply with equal force to private estates, but the underlying principles remain the same, and for that reason we seldom see them in ornamental plantations in England or France. It would be very interesting to hear from other readers of *The Gardeners' Chronicle* if this rule has been adhered to in other European countries or on the American continent. *B. H. M.* (*Milner, Son and White*).

SOCIETIES.

SOUTHPORT SHOW.

August 28, 29 and 30.—The clerk of the weather was extremely kind to the good people of Southport, and they thoroughly deserved his kind attentions. Rain fell during the eve of the show, and there were some light showers during the opening morning, but the afternoon of August 28 was pleasantly fine without being very warm, and rain fell at night. The second day was delightfully fine and rain fell again at night, so that dust was laid and everything was fresh for the final day. The attendance was wonderful and Southport broke all its previous records in regard to visitors and receipts.

The exhibition itself was the largest and the finest yet held at Southport, and the area it occupied was set out on page 157 of our issue of August 31. The show has gone from success to success, and has accomplished more in six years than any other function of similar character. This success is due, more than anything else, to the extreme courtesy and kindness of the Mayor, Aldermen, Councillors and Corporation officials and particularly to the untiring efforts of Mr. E. Wood, Mr. G. R. Crankshaw, Mr. C. Aveling and Mr. E. Clayton, with Mr. T. E. Wolstenholme, the Secretary, and Mr. W. Clark, the burly and genial Parks Superintendent, who is also the Show Superintendent. The way in which the whole of the show area, inside and out, was "washed and brushed up" each night was a fine example of the organisation of the show.

Competition was again good, and the avenues of artistic groups of plants, of hardy flower displays (Fig. 95) and of Roses, were wonderfully fine. Hardy Ferns constituted a good and interesting feature, while Dahlias and early-flowering Chrysanthemums produced vistas of splendid colour. The rock gardens did not impress us, but the non-competitive exhibits were magnificent, as a whole, and added greatly to the other attractions, while the big horticultural sundries section provided attractions for garden lovers of all grades.

We hope the Southport authorities will do nothing more to extend their show; it is quite big enough, and now they have achieved such success and such an important position in the horticultural world, they should concentrate on raising the quality and interest of the exhibits.

Two large and interesting features of this year's show were the exhibition of the British Gladiolus Society and the Sweet Pea Show arranged by Mr. A. C. Bartlett on behalf of the *Daily News*. Both exhibitions were admirable and are reported separately.

Rock and Water Gardens.

The rock gardens are now as much a feature of the Southport as of the Chelsea Show. On this occasion there were four competitors in the class for a rock garden or rock and water garden arranged on a space not exceeding 750 square feet. The Corporation Perpetual Challenge Cup and £50, offered as first prize, were won this year by Mr. E. T. **Rigg**, Kew Nurseries, Southport, who had a very pleasing design of well-placed rocks, lakelets and rivulets, a setting of closely-cropped grass and a restrained planting of dwarf Conifers, Heaths, Astilbe simplicifolia, dwarf Campanulas, Violas, neat little columnar Junipers, etc.

Second prize was won by Messrs. T. R. **Hayes and Sons**, Ambleside, whose arrangement of bold, weathered rocks was very imposing. The pools and waterfalls were as natural and picturesque as one expects from a "Hayes" design, while the Conifers, Campanulas, Astilbes, Heaths, Junipers and hardy Ferns were altogether pleasing. Third, Mr. R. **Thirkildsen**, Southport; fourth, Mr. P. **Gardner**, Addingham, whose design was broader than most.

Taken as a whole, however, the rock garden displays were not so attractive as on some previous occasions; we recognise that at this time of the year it is not possible to have rock gardens so gay as in the spring time, nevertheless, we are of opinion that if the rock garden exhibits are to continue to be an outstanding feature at Southport, the exhibitors must pay more attention to alpines and similar dwarf subjects—suitable, of course—that flower or otherwise give a bright effect at the end of August.

Groups.

The "group avenue" was once again a fine feature of the Southport Show, and for a combination of beauty of grace and colour the scene would be difficult to excel at a flower show.

The Challenge Trophy and first prize in the class for a group of miscellaneous plants in and out of bloom, arranged for effect on a space of 300 square feet, were won by Messrs. J. **Cypher and Sons**, Cheltenham—also last year's winners—with one of their delightful displays wherein lightly disposed arches with tall, bright Codiaeums, graceful Palms and Fuchsias, formed a splendid background for an artistic association of Codiaeums in great variety, Gesneras, Alocasias, Lilium speciosum, Humea elegans, Ixoras, Laelio-Cattleyas, Haemanthus carnea, Cypripediums, Francoa ramosa, Clerodendron fallax, and Nandina domestica, with Caladium argyrites and the variegated Saxifraga sarmentosa and Sedum Sieboldii var. variegata along the margins.

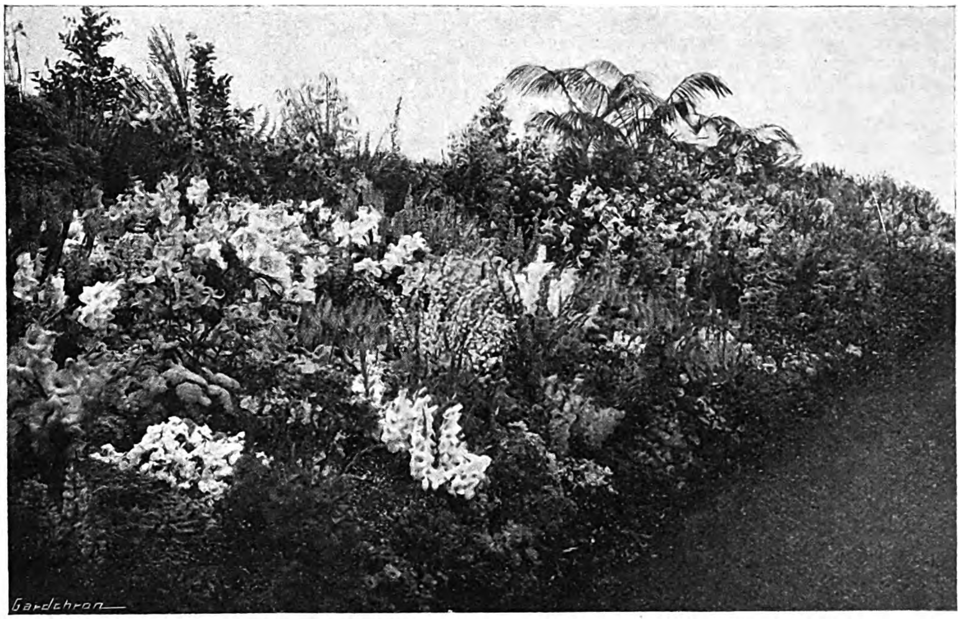
FIG. 95.—SOUTHPORT SHOW: THE HERBACEOUS AVENUE.

Sir **George H. Kenrick** (gr. Mr. J. V. Macdonald), Whetstone, Edgbaston, won second prize with a delightful exhibit that could not have been many points behind the Cheltenham group. Humea elegans, particularly well-grown Codiaeums, Bamboos, Ixoras, Francoa ramosa, wonderfully coloured Nandina domestica, the rare Dendrobium Goldei, Brassavola glauca in fine form, Cattleyas, Nerines, Oncidiums and Lilies were admirably arranged in this fine group. Mr. W. R. **Manning**, Dudley, third; and Mr. T. M. **Petch**, Bradford, fourth.

In the class for a group of foliage plants, arranged on a space of 300 square feet, there was a shuffling of positions, and Mr. W. R. **Manning** secured the Challenge Trophy and first prize with a very bold and well-arranged group. He had excellent Codiaeums, and these were very finely coloured and they no doubt turned the scales of justice in his favour. Mr. **Manning** also made good use of Palms, Ferns and Selaginellas, with Acalyphas, Alocasias, Ficus Parrcellii, various Caladiums, Dracaenas and Aralias. Messrs. **James Cypher and Sons** had to be content with second place, but they showed well, as also did Sir **George H. Kenrick**, who came third.

Hardy Flowers.

No class provided such a wealth of colour as the one for a collection of perennial and hardy herbaceous flowers arranged for effect on a ground space of 300 square feet. A handsome Challenge Trophy and £20 constituted the first prize, and this was won by Messrs. **Bees, Ltd.**, with a bold and gorgeous exhibit (Fig. 94). Hollyhocks and Helianthus made a fine background for huge sheaves of Lilium auratum, L. tigrinum, L. speciosum, L. Henryi, Agapanthus umbellatus var. albus, Crinum Powellii and C. P. var. alba, Gladioli of many varieties, Pyrethrums, Kniphofias, Scabious Lady Beaumont, Phloxes, Liatris, Campanulas and herbaceous Lobelias.

The **Gayborder Nurseries**, Melbourne, secured second place with a lower and more border-like display, in which Lavateras, Veronicas, Phygelius capensis, Lilium Henryi, Sidalceas and Acontum Napellus were outstanding subjects; third, the **Terra Nova School**, Birkdale.

For a collection of perennials, Gladioli, Liliums, etc., arranged on a ground space of 300 square feet, Messrs. **Maurice Prichard and Sons**, Christchurch, secured the premier award with a glorious exhibit of well-grown and well-arranged flowers. Kniphofias were particularly good, especially the varieties Royal Standard, Volante and Rufa; other fine subjects shown in large sheaves were Agapanthus umbellatus, Lilium auratum, L. Henryi, Crinum Powellii var. alba, Gladioli and Montbretias in variety, Poterium obtusum and Helianthus sparsifolius. Second, Messrs. **Harkness and Sons**, Leeming Bar, whose Gladioli were very good; third, The **Suffolk Seed Stores**, Woodbridge.

A new and popular feature was the class for a display of early-flowering, outdoor Chrysanthemums, arranged on a table space twenty feet by four feet. There were no fewer than eight competitors, who between them gave a fine demonstration of the value of these early-flowering varieties. The Dr. Barnes Trophy and first prize were won by Messrs. **Keith Luxford and Co.**, Sawbridgeworth, with a beautiful exhibit of clean, well-grown flowers of Mrs. Jack Pearson, Goldfinder, Bronze Early Buttercup, Shirley Pride, Elsenham White, September Glory, Crimson Circle, Harvester, Pink Delight, Carrie, Cranfordia and Gloria. Second, Mr. J. **Forsyth**, Putteridge; third, Mr. H. **Woolman**, Shirley, Birmingham; fourth, Mr. A. **Adshead**, Gatley.

Dahlias.

Dahlias in the big competitive class produced a splendid bank of colour. The schedule required a display of any varieties on a space twenty feet by four feet. The Aveling Trophy and first prize of £17 were won by Mr. H. Woolman, Shirley, Birmingham, with a handsome group wherein large-flowered Decorative sorts were H. B. May, Grace Darling, Mayflower, W. D. Cartwright and Ministre Baels; the new dwarf variety named Mrs. W. Clarke, a flame-shaded Single of Coltness Gem type, was also very attractive in this group. Second, Mr. E. Clegg, Dewsbury.

A superb lot of Dahlias secured the Crankshaw Trophy and first prize for Messrs. Burton and Sons, Elland, in the class for flowers arranged without artificial supports on a space forty feet by four feet. This firm displayed grand blooms of such large-flowered sorts as Mabel Lawrence, Berengaria, Ballet Girl, Jack Hobbs, Lord Lambourne, Exhibitor, Robert Treat, W. D. Cartwright (of immense size), Harry Strutt, Mrs. Warner and Silverado.

Messrs. Jarman and Co. came second, and had very fine blooms of Mabel Lawrence, Early Gem, Emma Groot, Mary Murray, Ballet Girl, Trentonian, E. S. Jackson, and Joyce Goddard (very bright). Third, Mr. H. Woolman.

Roses.

Mr. Thomas Robinson, Nottingham, annexed the Billington Trophy and first prize for the best display of Roses on a space twenty feet by four feet, with a very beautiful exhibit. Leading varieties represented by clean blooms in goodly numbers were Mabel Morse, Lady Inchiquin, Dame Edith Helen, Etoile d'Hollande, Madame Butterfly, Christine, Clarice Goodacre and Madame Herriot. Mr. C. Gregory, Chilwell, Nottingham, a very good second; Messrs. T. Smith and Son, Stranraer, third. This class was a most attractive one to the general public, and there were five competitors.

The premier award was won by Messrs. Benj. R. Cant and Sons, Colchester, in the southern class for a group of Roses, forty feet by four feet. This was a fine effort, and the clean flowers were displayed in baskets, pillars and other arrangements; second, Mr. J. Mattock, Headington. Messrs. D. Prior and Son, Colchester, led in the southern class for a display of Roses twenty feet by four feet.

There was a close tussle in the northern class for a display of Roses on a space forty feet by four feet, and here the Winterbottom Trophy and first prize of £20 were won by Messrs. S. McGredy and Son, Portadown, for a delightful exhibit of clean, bright flowers, largely displayed in baskets; a few of the leading varieties shown in good form were Portadown, Desmond Johnson, Arthur Cook, Mabel Morse and Shot Silk; second, Messrs. Bees, Ltd.

Messrs. Wheatcroft Brothers had the best three baskets of three dozen Roses, and were followed by Messrs. T. Smith and Son, Stranraer. Messrs. Adam and Craigmile, Aberdeen, beat the Donard Nursery Co., Newcastle, Co. Down, for twenty-four exhibition blooms of Roses.

Messrs. T. Smith and Son led for one basket of blooms of one variety, with Mrs. Henry Bowles; second, Mr. R. G. Ferguson, Dunfermline, with Earl Haig.

For three baskets of Roses (southern section), Mr. J. Mattock was the most successful exhibitor, showing Richard E. West, Shot Silk and Los Angeles in fine form. In the same section, Messrs. Frank Cant and Co., Colchester, led for two dozen exhibition blooms, with Mr. J. Mattock, second. The position of these firms was reversed in the class for one basket of fourteen blooms, and each showed the same variety—Dame Edith Helen.

In the county class for a display of Roses, five feet by four feet, the leading prize-winner was Mr. D. Mitchell, Bolton House, Blackpool, who had fine flowers of Captain Bald, Mrs. Foley Hobbs and J. G. Glassford; second, Mr. Robert Spaight.

Orchids, Begonias and Carnations.

J. B. Adamson, Esq. (gr. Mr. J. Hawes), Towneley Grove, Blackpool, secured the chief awards for Orchids, winning the Vestey Trophy for a group of these attractive plants; first prize for six Orchids, and also for three Orchids. It was regrettable that he had no competitors, especially remembering that there are two societies in the Manchester district devoting their attention to Orchids. Mr. Adamson's leading plants were Laelio-Cattleya Canberra var. Prince of Orange, Cattleya Hassallii var. alba, C. Hardyana var. June, C. Kienastiana var. alba, Cypripedium Rosettii, C. Greersonianum var. Gratrixianum, Miltonia Bleuana, Odontiodas and Odontoglossums.

Mr. T. L. Rushton, Garstang, Preston, secured the Blackmore and Langdon Trophy, *The Gardeners' Chronicle* Silver-gilt Medal and £7 10s.—the first prize—for a group of Begonias, and once again showed a very fine lot of plants of good varieties, and well arranged; second, Mr. W. Dodd, Formby; third, Mr. J. Irlam, Lytham, St. Annes. Mr. Rushton also won the premier award in the class for two specimen Begonias, while Mr. E. H. Henriques, Southport, and Mr. J. Walmsley, Ainsdale, were placed second and third, respectively.

The Engelmann Trophy for six plants of perpetual-flowering Carnations, was won by Mr. W. B. Feeny, Blundellsands (also last year's winner), who had capital specimens, and was followed, in a good competition, by Mr. C. H. Harpin, also of Blundellsands. For three vases of Carnations, however, Mr. Harpin turned the tables on Mr. Feeny, thereby winning the Rudolf Trophy. Mr. Charles Wall, Bath, secured the Trophy and first prize offered for a collection of perpetual-flowering Carnations, with a group of fine blooms of Laddie, Mrs. C. Ward, White Pearl, Glorious, Dixie, Spectrum and Saffron.

Some excellent plants were exhibited in the local classes, and we were attracted by the three fine specimen Ferns shown by Mr. W. V. Spencer, St. Helens; the three foliage plants from Cheadle Royal and the capital specimen Fuchsia, shown by Mr. A. Whitehead, Southport.

Hardy Ferns.

In their efforts to increase the culture and interest in hardy Ferns, the Southport authorities provided eleven classes for these plants and the competition therein was sufficiently good to warrant a continuation of the prizes offered.

The Abol Challenge Cup and £15, offered as first prize for a group of hardy Ferns filling a space of one hundred square feet, were again won by W. B. Cranfield, Esq., East Lodge, Enfield Chase, with a very pleasing arrangement of good examples of fine varieties associated with rocks and moss; the grouping was very attractive, and the little dell filled with Scolopendriums a distinct and pretty feature. Beautiful plants of fine forms of Polystichum angulare, Athyrium Filix-foemina var. clarissima and some especially good examples of the crispum section of Scolopendrium vulgare arrested attention in this collection from the foremost of present-day hardy Fern enthusiasts. Second, Mr. Joseph Lloyd, Southport; third, Messrs. Geo. Oliver and Sons, Melrose, the last-named showing small plants of choice forms.

Mr. Cranfield secured most of the premier awards in this section, winning first prizes for a dozen hardy British Ferns; six dwarf-growing British Ferns; six dissimilar Ferns in pots not exceeding nine inches in diameter, three Polypodiums, three Polystichums, three hardy British Ferns that originated as wild finds, and three dissimilar Ferns of garden origin. A few of Mr. Cranfield's finest plants were Polystichum aculeatum var. gracillinum, P. a. var. pulcherrimum, P. a. var. plumosum divisilobum, Lastrea Filix-mas var. cristata, L. F.-m. cristata var. The King, and Scolopendrium vulgare var. crispum speciosum.

Other prize-winners for hardy British Ferns were Messrs. G. Gibson and Co., Leeming Bar; Mr. W. F. Askew (who led for Aspleniums), Keswick; Mr. J. Lovelady, Haslingden; and the Rev. Canon H. Moore, Dundrum.

Violas and Pansies.

These popular flowers were exhibited in fine condition and the competition was keen throughout the numerous classes.

Names that appeared frequently on the principal prize cards were those of Messrs. Sanderson and Upton, Sheffield; Mr. J. Paul, Killicarn, Stirlingshire; Mr. J. Shepherd, Sheffield; Mr. R. Leslie, Whitehaven; Mr. H. Bairstow, Queensbury, Bradford; Mr. K. Johnstone, Bradford; Mr. H. Robertson, Kelty, Fife; Mr. J. Matthews, Pumpherston, Mid-Calder; Mr. F. J. Bell, Whitley Bay; Mr. H. Milner, Handsworth; and Mr. E. Clegg, Dewsbury.

Floral Designs.

These were not particularly good, except in the large class, but with the table decorations, they attracted a vast amount of attention and interest.

For a group of floral designs arranged on a space fifteen feet by five feet, Messrs. Bees, Ltd., led with a combination of beautiful, artistic and quaint designs; their cradle, parrot, telephone cover, cross, large basket, bowl and little donkey cart, were all fine examples of skilful craftsmanship; second, Messrs. Bakers, Wolverhampton; third, Miss Beatrice Skirrow, Southport; fourth, Mr. N. P. Millicent, Allerton; fifth, Mr. F. Drew, Walsall.

Mr. Moore, Wallasey, scored for three bouquets, with designs in Orchids and orange-coloured Roses; second, Mr. W. Hale, Great Crosby; third. Messrs. W. J. Garner and Son. Mr. Montague Stather, Cottingham, led for a hand bouquet, with bright-hued Orchids; second, Mr. C. Vickers. Mr. Stather was placed first for a basket of cut flowers, with a design in blue Agapanthuses and soft-hued, large-flowered Zinnias; second, Messrs. W. J. Garner and Son. Mr. Stather also led for a bowl of flowers, and had a pretty arrangement of Gerberas, pink Anthuriums and Bocconia sprays; second, Miss Newsham, with Liatris, Pyrethrums and Poterium sprays.

Mr. Stather was particularly successful in this section; he had the best bowl of Orchids, using Vanda coerulea, Odontiodas and Laelio-Cattleyas; second, Miss Nellie Gibson; third, Mr. J. Nixon. Mr. Stather had the best bowl of Carnations and the best bowl or basket of flowers suitable for a table decoration—a pleasing arrangement of Scabious. Mrs. Butchart, St. Swithin's Lane, London, won first prize for a bowl of Roses, with Messrs. W. J. Garner and Son, second. Mrs. Butchart was equally successful in the class for a vase of Roses. Mrs. J. Nixon led for a basket of Dahlias, a basket of Pansies and Violas, and a table centre of Pansies.

In the trade excluded class for a bowl of cut Roses, honour fell to Mr. L. Courtney Page, Haywards Heath, who had a fine display of Roselandia; second, the Cheadle Royal Hospital. Miss Newsham, however, beat Mr. Courtney Page for a table decoration of Roses, with a very dainty and pleasing design in Dainty Bess; Mr. Courtney Page used Emma Wright.

In the open class for a table decoration of flowers (Orchids excluded), Mr. Courtney Page led with a very fine arrangement of Roselandia Roses.

Special interest centred in the open class for a table decoration in Orchids, as here the first prize consisted of £7 10s. in cash and the Woodhead Trophy. Premier honours were well won by Miss Nellie Gibson, Stamford Hall Gardens, Loughborough, who has been a close runner-up on previous occasions, and received many well deserved congratulations upon her success this year. Miss Gibson associated Cattleya Hardyana, white Odontoglossums and golden Oncidiums as her central feature, with a base of coloured Odontoglossum sprays and Cypripediums; the corner-pieces were composed of soft mauve-purple Laelio-Cattleyas, and each had two short sprays of Oncidium varicosum, one pointing towards the centre-piece, and one towards a table corner Second, Messrs. W. J. Garner and Son, who had an effective arrangement of Odontoglossums, Cattleyas, Epidendrum vitellinum and mauve Dendrobiums.

There were numerous classes for table decorations, and in the one where bare, brown-stained tables had to be used, Messrs. W. J. Garner and Son won first prize with Francoa sprays and Gloriosa blooms. In an Orchid excluded class (on an oval table), Miss Newsham beat Mr. Stather with a bold design in Gladioli, Delphiniums and Kniphofias. In a Rose excluded class, Miss Newsham gained first prize with Gerberas and Mr. J. Nixon came second with Gloriosas and Orchids.

Decorated Fruit Table.

Out of four entries in a close competition in the class for a decorated table of choice fruits, the Marchioness of Tweeddale (gr. Mr. Alex. McBean), Gifford, East Lothian, won the Challenge Trophy and first prize of £30. The schedule requirements were twenty-four dishes of fruits in not fewer than nine distinct kinds. The Gifford display was a capital one, and included Muscat of Alexandria Grapes, clean and shapely; Alicante and Black Hamburgh Grapes; Marguerite Marillat and Souvenir du Congrès Pears, Ellison's Orange and Cox's Orange Pippin Apples (very fine); King George Melons, and fine Peaches, Nectarines, Plums and Figs. Apart from the value of the decorations—buff Carnations—the total number of points for the fruits was 143½

By-the-way, we suggest that when the judges have concluded their pointing, they and their steward should add up the possible points and set them against the actual points. In a crowded tent and with keenly interested people examining these tables, it is next to impossible for a busy pressman to total up the possible points for the sake of comparison with those awarded.

Second prize was won by the Duke of Newcastle (gr. Mr. S. Barker), Clumber, who showed very fine Peaches, excellent Apples and Grapes, Pears, Nectarines, Figs and Melons; his points for fruits were 140; third, Lord Belper (gr. Mr. J. McCartney), Kingston Hall, Derby, with 134½ points for fruits; fourth, Mr. A. Mason, Newby Hall Gardens, Ripon, with 125 points for fruits.

Two very attractive exhibits were staged in the class for a decorated table of British and/or foreign fruits; a space of ten feet by four feet was provided, and fourteen dishes or other receptacles had to be filled. The Aveling Trophy and premier award was won by Mr. M. Wright, Southport, with a central stand of Pineapples, elegant baskets of black and white Grapes, Melons in variety, Peaches, Nectarines, Nuts, Pears and Oranges. The whole was decorated with pink Carnations and white Heather. Second, Mr. G. Hallam, Sandon Road, Birkdale.

Among the several classes provided for Grapes, the chief was the one for twelve bunches in four or more varieties, but not more than four bunches of any one variety. Here the premier award is the Rhodes Trophy valued at £30, together with £25 in cash. Having won a previous trophy outright in 1928, the Earl of Strathmore (gr. Mr. D. McInnes), Glamis Castle, Forfarshire, led again this year, and so laid the foundation of success for winning the new Wilkinson Trophy, which has to be won three times to become the property of a competitor.

The Glamis collection of Grapes consisted of shapely, good-sized, nicely finished clusters of Muscat of Alexandria (4), Muscat Hamburgh (4), Gros Maroc (2), and one bunch each of Black Hamburgh and Chassilas Napoleon. The points awarded were 87 out of a possible 121. Lord Belper came second, with 81 out of a possible 122 points; Captain W. H. France-Hayhurst (gr. Mr. A. H. Hall), Bostock Hall, Middlewich, third, with 78½ points out of a possible 119; and the Duke of Newcastle, Clumber, fourth, with 72½ points out of a maximum of 120.

Dyson Perrins, Esq. (gr. Mr. G. F. Anderson), Davenham, Malvern, won first prize for four bunches of Grapes in not fewer than two varieties, and he was followed by Mr. W. Parker, Mansfield, and Mr. W. Izzard, Newark, in order as named. The Duke of Newcastle led for a pair of bunches of white Grapes, with Buckland Sweetwater; second, T. Henshaw, Esq., Roby; third, H. Rigby, Esq., Blackpool.

Colonel Hughes, Shardley Hall, St. Helens, had the best single bunch of Black Hamburgh Grapes. The Duke of Newcastle scored firsts for two bunches of Black Hamburgh and for two bunches of Madresfield Court. Mr. W. Parker led for two bunches of black Muscat Grapes, the Duke of Newcastle coming second. Captain France-Hayhurst received first prize for a pair of bunches of Alicante, while T. G. Moore, Esq. (gr. Mr. W. H. Friend), Castleton, Isle of Man, led for two bunches of "any other" black variety, and the Earl of Strathmore beat Dyson Perring, Esq., in the class for two bunches of white Muscat Grapes.

Vegetables.

Vegetables were shown extensively and well. The collections were arranged in the centre of one large tent, while the sides were filled with a vast number of exhibits in the numerous single dish classes.

Special interest centred this year in the new class for a display of vegetables arranged to face all ways on an oval table fifteen feet by ten feet. Here, as at Bakewell, the competition was confined to Lord Leconfield (gr. Mr. F. Streeter), Petworth, Sussex, and Dr. Roy (gr. Mr. Allan Falconer), Cheadle Royal Mental Hospital, Cheadle, but whereas Cheadle Royal won handsomely at Bakewell, Petworth left nothing to chance at Southport, and so won the Peter Walker Challenge Trophy and £20, offered as first prize.

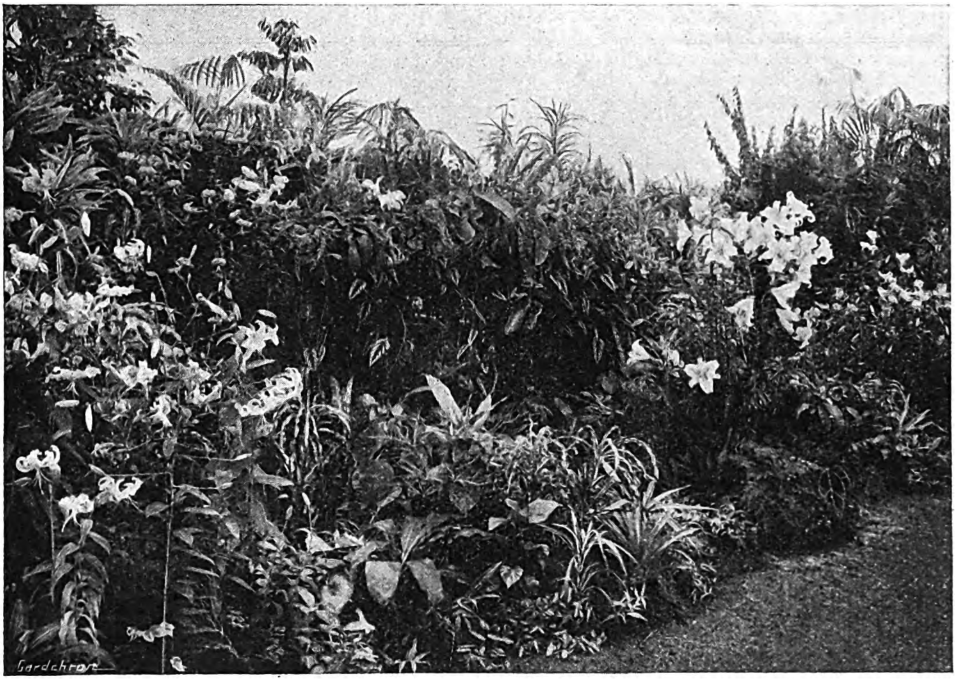

FIG. 96.—SOUTHPORT SHOW: T. G. MOORE, ESQ.'S GROUP OF INDOOR PLANTS.

Lord Leconfield's display was a particularly bright one, and Mr. Streeter made good use of coloured-podded Peas and Beans, Capsicums and Chilies, Aubergines and Gourds, but also showed high-class examples of Onions, Celery, Leeks, Parsnips, Cauliflowers, Carrots, Tomatos, and Cucumbers. This was a very fine and very attractive exhibit, but the same may be stated of the display from Cheadle Royal, for although Mr. Falconer was beaten, he gave few points away; both competitors are to be congratulated upon their splendid demonstrations of high culture and skilful exhibition of vegetables.

When Messrs. Jones and Son, of Ammanford, set out to win a prize for vegetables they rarely fail in their aim, and so on this occasion they secured the open championship by winning the Larking Trophy and £10 offered for the best collection of twelve distinct kinds of vegetables. The Ammanford produce is always well nigh perfect in size, form and colour. At Southport, it consisted of Onions, Leeks of superb quality, Parsnips, Tomatos, wonderful Runner Beans, The Bishop Potatos, Celery, Cucumbers, Cauliflowers, Carrots and Peas. Second, Mr. W. Robinson, Foxton, near Garstang; third, Colonel G. Pilkington, St. Helens; fourth, T. G. Moore, Esq., Castleton, Isle of Man.

Mr. W. Robinson is invariably a successful competitor and this year he won premier awards in two classes for collections of vegetables. Other prize-winners in specially provided classes for collections were Mr. T. M. Jones, Llandilo (Carters'); Mr. J. Rimmer, Codishead (Clucas'); Messrs. Jones and Son, Ammanford (Dickson and Robinson's); and Mr. John Evans, Llandilo (Suttons'), Tadworth; Lord Riddell and Mr. Weaver, Mold, were other successful exhibitors in vegetable classes.

Awards of Merit

Carnation Startler.—A scarlet, sweetly-scented variety. From Messrs. C. Engelmann, Ltd.

Dahlia Dr. Helmet Spath.—From Messrs. Fairbairn and Sons.

Chrysanthemum Robert McAlpine.—A large and elegant early-flowering variety; red with rose shading. From Mr. A. McAlpine.

Venidium fastuosum. — A large-flowered, strong-growing yellow, South African annual (see coloured plate in our issue of February 2, 1929). From Messrs. Sutton and Sons.

Non-Competitive Exhibits.

These were very attractive and some were of particular interest. The Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, excelled all previous efforts, wonderful as these have been, in the display of superbly-grown vegetables (Fig. 85). Mr. L. R. Russell's economic plants; Mr. Amos Perry's aquatic and bog plants (Fig. 86); Messrs. Sutton and Sons' Gloxinias; Mr. G. Smith's rare plants, from Newry; fruit trees in pots from the King's Acre Nurseries; Peaches and Nectarines from Messrs. T. Rivers and Son; stove and greenhouse plants from Messrs. J. Peed and Son and Mr. T. G. Moore—who brought a large group (Fig. 96) of interesting subjects (including Nepenthes and Orchids) from the Isle of Man; Messrs. Dobbie and Co.'s Dahlias; Messrs. Alex. Dickson and Sons' Roses; Messrs. Dickson and Robinson's Dahlias and Stocks; the Carnations from Messrs. Allwood

Brothers and Messrs. C. Engelmann, Ltd.; the Sweet Peas from Messrs. Robert Bolton and Sons; and Messrs. Bees formal garden; were a few of the most outstanding exhibits. Awards were made as follow :—

Cups and Trophies.

"*The People*" *Challenge Trophy,* for the best non-competitive exhibit in the show.—To the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Elstree, for a display of vegetables; with the congratulations of the judges.

Scenic Railway Trophy, for the best display of pot-grown fruit trees.—To the King's Acre Nurseries, Ltd.

Boothroyd Trophy, for the most meritorious non-competitive formal garden.—To Messrs. Bees, Ltd., Liverpool.

Rushton Challenge Trophy, for Orchids.—To Messrs. Charlesworth and Co., Haywards Heath.

Medals.

Large Gold.—To Messrs. Allwood Brothers, for Carnations and Dianthi; Messrs. Blackmore and Langdon, for Begonias and Delphiniums; Messrs. Bees, Ltd., for a formal garden; Messrs. R. H. Bath, Ltd., Wisbech, for Gladioli; Messrs. R. Bolton and Son, for Sweet Peas; Messrs. Dickson and Robinson, for Dahlias, etc.; Messrs. Alex. Dickson and Sons, Ltd., for Roses and Sweet Peas; Messrs. Dobbie and Co., Ltd., for Roses, Dahlias and Sweet Peas; The Donard Nursery Co. (Co. Down) for shrubs, herbaceous and bulbous flowers; Messrs. C. Engelmann, Ltd., for Carnations; The Hon. Vicary Gibbs, Aldenham, Elstree, for vegetables; Messrs. Hodsons, Ltd., for a rock and water garden; Messrs. Kent and Brydon, Ltd., for a formal garden; The King's Acre Nurseries, Ltd., for fruit trees in pots; The Lancashire County Council, Education Dept., Preston, for a horticultural educational exhibit; Mr. T. Smith (Newry), for rare trees and shrubs and hardy plants; Messrs. Sutton and Sons, for Gloxinias and Sweet Peas; Messrs. John Peed and Son, for stove and greenhouse plants; Mr. Amos Perry, for aquatics and Water Lilies (with special congratulations of the judges); Messrs. T. Rivers and Son, Ltd., for fruit trees in pots; Messrs. L. R. Russell, Ltd, for economic and medicinal plants, Water Lilies and other aquatics; Mr. K. Therkildsen, for a formal garden; and to Messrs. W. J. Unwin, Ltd., for Gladioli.

Gold Medals.—To Messrs. Backhouse Nurseries (York), Ltd., for a miniature rock garden; Messrs. Barr and Sons, for new hybrid Montbretias; Messrs. Charlesworth and Co., Ltd., for Orchids; Messrs. J. L. Clucas, Ltd., for vegetables; Miss Evelyn M. Cowell (Sutton Coldfield), for a formal garden; The Churchtown Council School, Southport, for fruits, flowers and vegetables grown by boys of the School; Messrs. Daniels Brothers, Ltd., for Gladioli and Montbretias; Mr. John Evans, for Orchids; Messrs. Fairbairn and Sons, for Phloxes; Messrs. John Forbes (Hawick), Ltd., for Phloxes and Pentstemons; the Florists' Telegraph Delivery Association, for floral art; Messrs. J. Kelway and Sons, for Gladioli; Messrs. A. J. Keeling and Sons, for Orchids; Mr. Robert Lawrie, Carnwath, for Begonias; Mr. James MacDonald, for a grass garden; Messrs. Maxwell and Beale, for alpines and Heaths; T. G. Moore, Esq., Castletown, Isle of Man, for stove and greenhouse plants; Mr. H. Prins, for Dahlias, Gladioli and Liliums; Messrs. W. H. Simpson and Sons, for Gladioli and Antirrhinums; Messrs. Toogood and Sons, Ltd., for a mixed floral exhibit; Mr. C. Vickers, for floral designs; and to Messrs. Hewitt and Co., Ltd., for Delphiniums and Roses.

Silver-Gilt Medals.—To Mr. E. J. Bayley, for Gladioli, Montbretias and annuals; Messrs. Bakers, for hardy plants and flowers; Messrs. Matthew Campbell and Son, for border Carnations; Messrs. Ben. R. Cant and Son, Ltd., for Roses; Messrs. D. and W. Croll, Ltd., for Potatos; Messrs. Dickson's Nurseries, Ltd., for Roses and floral designs; and one for ornamental shrubs; Mr. H. N. Ellison, for exotic Ferns; Messrs. G. Gibson and Co, for alpine plants; Mr. P. Gardner, for a Heath garden; Mr. F. E. Green, for topiary; Mr. W. F. Gullick, for Scabious; Messrs. Isaac House and Son, for Scabious; Mr. Robert Hayes (Grassmere), for shrubs, Heaths and alpine plants; Mr. P. Johnson (Southport), for alpine plants; the King's Acre Nurseries, Ltd., for Roses; Mr. John Klinkert, for topiary; Messrs. Laxton Brothers, for Roses; Mr. Robert Nanson, for Roses; Messrs. Geo. Mair and Sons, for large-flowered Gladioli; Messrs. Middlehursts, Ltd., for vegetables, grasses and Gladioli; Messrs. Rich and Cooling, Ltd., for hardy flowers; Messrs. S. Smith and Sons, for Cacti and Succulents; Messrs. Velthuys and Co., Ltd., for Gladioli; Mr. W. H. Walters, for rare hardy plants; Mr. W. Wells, junr., for hardy flowers; Messrs. Wm. Wood and Sons, Ltd., for hardy plants; Mr. B. Waterhouse (Crewe), for Dahlias and Gladioli; and to Messrs. Wheatcroft Brothers, for Roses.

Silver Medals.—To Messrs. C. H. Bloom and Sons, for hardy perennials; Messrs. Bowell and Skarratt, for alpine and aquatic plants; Mr. H. Clarke, for Larkspurs, etc.; Garden Supplies (1929), Ltd., for alpine and herbaceous plants; Mr. John Golding (Fordham), for Scabious; Mr. Charles Wm. Holt, for alpines and British Ferns; Mr. T. R. Hayes, for alpine plants; Mr. John Jones (Wem), for Violas and Pansies; Messrs. Jones Brothers, for hardy flowers; the King's Acre Nurseries, Ltd., for Dahlias and Chrysanthemums; the Kippen Vinery Co., for Grapes; Messrs. Leightons (Glasgow), for herbaceous and alpine plants; Mr. O. Milne-Redhead, for dwarf shrubs and plants; Mr. J. F. Rashley, for a small rock garden; Mr. F. Rich, for Phloxes, etc.; Mr. Edmund J. Rigg, for alpine plants and dwarf shrubs; Messrs. Sutton Brothers, for Orchids; Mr. Stephen Sims, for a miniature rock garden; Mr. Geo. G. Whitelegg, for hardy flowers; Mr. Geo. E. P. Wood, for a small rock garden; and to Messrs. W. Brown and Son, for hardy shrubs and climbers.

Cultural Commendation.—To Messrs. Clibrans for fruits of Apples A. W. Barnes, M. A. Barnes and Lord Lambourne.

"DAILY NEWS" SWEET PEA SHOW.

Sweet Peas have become a very important feature of the Southport Flower Show. Last year the National Sweet Pea Society, in association with the *Daily News*, and on the invitation of the Flower Show Committee, held a very successful Provincial Show at Southport. This year the Society held its Provincial Show at Norwich, so the *Daily News*, to continue its association with Sweet Peas and Southport, provided an excellent schedule of prizes which attracted an exceptionally large number of entries from almost all parts of the country and brought together a vast collection of exceedingly fine sprays of bloom which made one of the largest and very best competitive Sweet Pea shows that have ever been held. As would be expected in the circumstances, there were no entry fees, and the schedule included classes for all grades of growers, from the veritable novice to the skilled and seasoned expert amateur Sweet Pea grower. With one exception the competition in all the classes was admirable. At the onset the *Daily News* enlisted the assistance of Mr. A. C. Bartlett, the Secretary of the National Sweet Pea Society, who was responsible for the comprehensive schedule and admirable arrangements of the show. Recognising that such a show as that which the *Daily News* was holding would further general interest in their special flower to a considerable extent, the Committee of the N.S.P.S. willingly lent their show vases for the occasion, so that there was the desired uniformity of staging. The *Daily News* and all concerned are to be congratulated on the success of the show.

Amateurs' Classes.

The *Daily News* Championship class, which required twelve vases of distinct varieties, was immensely successful from every point of view. There were no fewer than twenty-eight entries, and as the quality of the blooms was consistently high, the long array of exhibition blooms presented a spectacle which gladdened the eyes of the many Sweet Pea enthusiasts who inspected them with keen appreciation. The valuable Silver Trophy and cash prize of £20 were won by Mr. J. G. Robeson, Banbury, who is well-known as a very enthusiastic and successful amateur exhibitor of Sweet Peas who grows his plants unaided. It was a collection of superb Sweet Peas of high quality, well deserving of the valuable prize and the occasion. The varieties were Mrs. A. Searles, which was awarded the Gold and Enamel Medal as being the best vase in the show, Royal Mauve, Royal Pink, Valletia, Model, Magnet, Powerscourt, Youth, What Joy, Mammoth, Pinkie and Olympia. Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex, was a very good second in this strong class, and his splendid exhibit could not have been many points behind the winners. Here again, the exhibit was characterised by very high and even quality; it included in a magnificent vase of Powerscourt, the second best vase in the whole show, and was awarded the Gold Medal. Model, Mrs. A. Searles, Youth, Gold Crest and Susan were of great excellence. Miss K. Allington Hughes, Wrexham, was third; Mr. John Haycocks, Wrexham, fourth; and Mr. John A. Grigor fifth in this stupendous class, where several other exhibits which ordinarily would have won prizes went unrewarded.

The seven colour classes continued the high quality of the Championship Trophy class, and here Mr. Samuel Wallrock was particularly successful, for he won five of the first prizes with the following varieties :—Magnet, pink; What Joy, white or cream; Mrs. A. Searles, cerise or crimson; Gold Crest, orange or scarlet; and Youth, Picotee-edged. Mr. G. H. Brookshaw, Hough, near Crewe, was first in the class for a vase of any blue, mauve, lavender or purple variety, with Powerscourt, while in the class for a vase of any colour not mentioned above, Mr. H. Stubbs, Knutsford, was first with Corona, which was also shown in good form by another exhibitor. Brilliant Rose and The Sultan were other noteworthy varieties.

The English county district classes were all well contested. As was to be expected so late in the season, there were most entries in the northern counties class, where Mr. H. Stubbs was first with excellent vases of Magnet, Model, Youth, Purple Monarch, Powerscourt and Mrs. A. Searles. Mr. G. H. Brookshaw was second, and Mr. J. Cyril Lockwood, Ranmoor, Sheffield, was a good third. There were twelve entries in the midland counties class and here Mr. R. Challinor, Balterley, Crewe, was first with an admirable collection of which the best vases were Lilac Queen, Sybil Henshaw, Powerscourt and Youth. Mr. H. E. Welch, Belper, Derby, was second, and Mr. George Kent third. Of the nine entries in the southern and western class, the best was by Samuel Wallrock, Esq., who again set up a noteworthy exhibit. His very best varieties were Model, Charming, Huntsman and Gold Crest. Mr. F. Churchward, Kingskerswill, South Devon, was a worthy second, and Mr. F. H. Hannah, Bushey Park, Hertfordshire, third.

As last year, when the National Sweet Pea Society held a Provincial Show at Southport, the Scottish entries were disappointing in numbers, despite the fact that extra classes were arranged. On the present occasion there were only five entries in each of the three classes. Mr. John A. Grigor was first in the class for six varieties and also for three varieties. His best sorts were Wild Rose, Powerscourt, Avalanche, Grenadier, Lilac Queen, Pinkie, Miss California and Purple Monarch. Mr. George Ballingall, Dumbarton, who was second in each instance, was first in the class for a vase of three distinct varieties, which he arranged very effectively.

The Irish entry did not materialise. In the Welsh class, Mr. John Haycocks was first with admirable vases of Treasure, Mrs. A. Searles, Valetta, Sunkist, What Joy and Magnet.

The Novices' Section was immensely popular, and the five classes averaged twenty-eight entries in each. Mr. Tom Jones, junr., Ruabon, won first prizes for six vases and for three vases, with especially good blooms, and was also first with a colour scheme in three varieties. Mr. F. Brown, Blackburn, was the most successful exhibitor of one distinct variety. The novel class for the spike bearing most flowers drew forty entries, and the first prize was won by Mr. Samuel Wallrock, with a slightly fasciated spike of Mrs. A. Searles bearing ten good blooms.

Open Classes.

It was rather late in the year to expect large competition in the novelty classes, although the quality was very gratifying. Messrs. Robert Bolton and Son were first in both classes. Their three novelties included Stellate, a beautiful cerise flower flushed with orange, and unnamed pink and cerise seedlings. The single variety was Fire Glow, a fine, rich cerise, flushed with oriental-red on a white base. Mr. J. Stevenson was second in the class for three varieties with very good seedlings.

The decorative displays of Sweet Peas arranged on tables measuring twelve feet by six feet were a very delightful feature of the show. Messrs. A. Leigh and Son won the Silver Challenge Trophy and first cash prize with a superb display in which they used splendidly-grown flowers of such varieties as Mammoth, Colorado, Mrs. A. Searles, Magnet, Venus, Model and Gold Crest. Messrs. W. Scott and Sons, who were second, had a graceful table, and used Grenadier, Susan, Picture, Magnet, Sybil Henshaw and other varieties to good effect. Messrs. Herd Brothers were a good third; Mr. A. Johnson, fourth; Mr. R. Wright, fifth, and Messrs. J. Cook and Sons, sixth.

The *Daily News* open decorative classes were also very successful. The best of the many designs of Sweet Peas was the golden gates ajar, made by Mr. R. Dewhurst. Mr. Montague Stather was second, and Mr. J. Pilkington third. Mr. A. Johnson had the best lady's spray, and Mr. Walter Martineau was first with a gentleman's buttonhole of Sweet Peas. The numerous brides' bouquets were especially beautiful. Millicent's Florists had the best, and Mr. M. Stather the second best.

In the Southport amateurs' classes there were many vases of good Sweet Peas. Mr. T. H. Russell, Ainsdale, was first in the class for six vases, while Miss Isa Schofield, Southport, was first in the class for four vases.

The only non-competitive exhibit of Sweet Peas was one of the superb displays which are expected from Messrs. Robert Bolton and Son. This was composed of splendid blooms of a great many of the best varieties and well deserving of the special Gold Medal which was awarded.

BRITISH GLADIOLUS.

August 28, 29 and 30.—This special flower Society held an "International Show" on these dates, in conjunction with the great Southport Flower Show. The allotted space was well filled with Gladioli, and the portion set aside for the large displays by the trade made a magnificent avenue of brilliant flowers. While this bold and striking effect was, of necessity, absent in the classes for smaller exhibits, these contained many admirable varieties. The competition among amateurs and especially in the many single spike classes was very good. Many novelties received award, but as most of them were placed among the general exhibits we fear that the visitors generally often failed to appreciate their charm and beauty at their full value. The enthusiastic and energetic Hon. Secretary very kindly furnished us with a full list of the awards.

Silver-Gilt Medals.

Annie Gregg.—A large-flowered variety; the light cream ground is overlaid with blush-pink, and the margins are flecked with pink. There is a yellow throat with crimson median lines. Shown by Mr. S. H. Gregg.

Ajax.—This very attractive, slender-spiked, scarlet, Primulinus variety was also given an Award of Merit. Shown by Mr. J. L. Gibson.

Silver Medals.

Gertrude Amos.—A large-flowered variety with salmon-pink ground, heavily flecked with deep pink on the edges. There is a small, crimson blotch and ruffled petals. Also granted an Award of Merit. Shown by Messrs. W. J. Unwin, Ltd.

Mrs. G. C. Taylor.—Primulinus. A glowing salmon-pink Primulinus variety, which has crimson-lake lines on the pale orange throat. Shown by Mr. J. L. Gibson.

Bronze Medals.

Christine Prior.—A large-flowered variety in which the salmon ground is heavily flaked with slaty-blue. The throat is spotted and the petals slightly waved. A tall, striking variety. Also given an Award of Merit. Shown by Messrs. Kelway and Son.

Edgar Ingham.—A salmon-pink Primulinus grandiflorus variety with a clear yellow blotch and broad, white median lines. Slender spike. Also given an Award of Merit. Shown by Messrs. Kelway and Son.

Awards of Merit.

Dainty.—A salmon-pink Primulinus grandiflorus, with deeper colour at the margins; a lemon blotch and scarlet throat. Shown by Messrs. R. H. Bath, Ltd.

Gloriana.—A beautiful, large-flowered variety which has golden-salmon colouring with a yellow throat. Shown by Messrs. R. H. Bath, Ltd. and by Mr. J. L. Gibson.

Mrs. W. J. Unwin.—A large-flowered, pale pink variety with deeper pink at the edges, and white median lines; the white throat is feathered crimson. Shown by Messrs. K. Velthuys and Co.

Carminea.—A large-flowered Gandavensis variety of deep ruby-crimson colouring, with a white blotch. A handsome flower. Shown by Messrs. G. Mair and Sons.

David Prior.—A magnificent, large-flowered, orange-scarlet variety, with slight markings on the yellow throat. The large, ruffled flowers are of splendid texture. Shown by Messrs. G. Mair and Sons.

Dark Lantern.—A rich, ruby-crimson, large-flowered variety with cream feathering in the throat. Shown by Messrs. Kelway and Son.

Senorita.—A clear orange-yellow, with carmine tongue and pencilling; large, widely open florets. Of uncommon appearance, Shown by Mr. H. Prins and Mr. A. E. Amos.

Alice Amos.—This large-flowered variety is creamy-white at first and opens to almost pure white with a creamy tint in the throat. Shown by Mr. A. E. Amos.

Open Classes.

The only exhibit on a table space twenty-five feet long was by Messrs. K. Velthuys and Co., Ltd., and they most ably demonstrated the great decorative value of the Gladiolus when boldly arranged in suitable receptacles and with appropriate foliage. The class for the Nurserymen's Championship brought better competition, and here the first prize was won by Messrs. W. J. Unwin, Ltd., who filled the thirty-feet run of tabling with splendid spikes arranged with considerable skill and taste. The large-flowered sorts were especially good, and these included Anna Ebenus, Rose Ash, Thomas Edison, Bleriot, Dr. F. E. Bennett and Mrs. Dr. Hauff. The most prominent of the many graceful Primulinus varieties were Souvenir, L'Egaillon, Orange Queen and Xanthia. Messrs. W. J. Unwin, Ltd., were also awarded the first prize for a beautiful exhibit of all sections of Primulinus hybrids. Mr. H. Prins was second, and Messrs. W. Artindale and Son were third, in the large class, both showing very good collections.

The first prize for twenty-four large-flowered varieties, introduced during the past three years or not yet in commerce, was won by Messrs. G. Mair and Sons with magnificent spikes which bore an exceptionally large number of fully open flowers. The varieties included Lochnagar, Faust, David Prior, Quality, Rachel, Golden Sheen and The Fawn; Messrs. Kelway and Son were second. In the similar class for Primulinus varieties, the Championship Cup was won by Messrs. R. H. Bath, Ltd., with a graceful exhibit of such varieties as Salmon Queen, Beauty of Cambridge and Aurora; Messrs. W. J. Unwin, Ltd., were second, and Messrs. Kelway and Son third. Mr. W. Yandell was awarded the first prize for a good exhibit of twenty-four spikes of any of the two sections of Gladioli, and Mr. H. Prins had the best exhibit of twelve florist or commercial varieties.

With a splendid exhibit of twelve large-flowered varieties, such as Betty Snow, Jenny and Sunset, Messrs. G. Mair and Sons won the first prize. In the floral classes, Mrs. Yandell was first (a) with a handsome bowl of large-flowered varieties; (b) a vase of large-flowered; (c) a vase of Primulinus varieties; (d) three bowls of Primulinus varieties, and (e) an artistic dinner table decoration of Primulinus Gladioli.

Amateurs' Classes.

In the principal section for amateurs, the competition in the larger classes was disappointing, although the exhibits were of good quality. Mr. W. E. Samuel, Wrexham, was awarded the first prize for twenty-four British varieties of either section, where he showed some good seedlings and Mandarins; in Class 19, for a similar number, his first prize exhibit included Priscilla, Allen, Butter Boy, Catherine Colman and Marie Lion; while among his exhibit of American varieties were good spikes of Ethelyn, Salmon Beauty and Gryon Meadel. Mr. D. Whitelaw, Laurencekirk, won the *Homes and Gardens* Trophy with an interesting collection. First prizes were awarded to Mr. A. E. Amos, Colchester, in Class 22; to Major Churcher, Lindfield, in Class 23; to Mr. G. Williams, Preston, in Class 25; and to Mr. W. E. Phillips, London, in Class 26, for praiseworthy exhibits, although, unfortunately, they had no competitors. Mr. D. Whitelaw won first prizes for three distinct spikes of large-flowered varieties and for three spikes of one variety. Mr. W. E. Samuel had the best three spikes of distinct Primulinus grandiflorus varieties, and Mr. G. Williams, Preston, had the best three of Primulinus.

The colour classes, which required one spike, were well contested. Mr. Whitelaw won first prizes for the following large-flowered varieties: cream and white; Pfitzer's Triumph, crimson; Sunset, orange or yellow; Irene, pink, rose or salmon; Guy Mannering, violet or purple; and Rosella Amos, any other colour. With Marmora, Mr. W. E. Samuel was first for lavender, lilac or mauve. In the similar classes for Primulinus varieties, Mr. J. Howarth, Tottington, was first, with Ethelyn, yellow, and Pfitzer's Triumph. Mr. W. E. Samuel showed, in a good seedling, the best white. Mr. P. S. Todd won with Lilac Queen, and Mr. H. E. Tyrer, Penwortham, showing Jewel, was first for pink, rose or salmon; Taurus, shown by Mr. G. Williams, was the best in the any other colour class.

The quality was particularly good in Group C., where Mr. Whitelaw, showing King George, Queen Mary, Mrs. T. Malthouse and Apricot, of considerable excellence, was first in the class for six large-flowered varieties. Mr. T. Jones was second with three unnamed sorts. Mr. Whitelaw again was first in the class for six Primulinus, where he included Salmon Beauty, Sunset and Nydia, of graceful beauty. In the Southport area class, Mr. R. Ackers had six excellent spikes.

The non-competitive exhibits filled considerable space and were a very attractive feature of the show. Messrs. W. J. Unwin, Ltd., had a very large group of representative sorts, as also did Messrs. Kelway and Sons. Messrs. R. H. Bath, Ltd., and Messrs. Bees, Ltd., set up very imposing displays, while Messrs. W. Artindale and Son, had a well arranged collection, mostly of the large-flowered varieties. Mr. H. Prins had many baskets of Gladioli, and Messrs. Rowlands and Co. showed large-flowered sorts in variety.

Obituary.

Alwin Neumann.—We have to record the death, on August 9, of a well-known German nurseryman, Alwin Neumann, of Unwürde-Lõbau. Deceased was born in 1865, and was the son of a nurseryman. After varied experience, he founded his own nursery in 1902, which, from a small beginning, attained to a remarkable development. He specialised in Roses and ornamental trees, and latterly 100,000 Roses alone were sent out of the nursery every year. The business will be continued on the same lines as before by his son, but German horticulture is the poorer by Neumann's death, and his many friends will long mourn his loss.

ANSWERS TO CORRESPONDENTS.

Aphis on Peaches under Glass.—*J. J.* Your trees are attacked by Aphis pruni, which attacks Plums and Peaches, and if neglected causes considerable trouble before the trees can be cleansed. If taken in time it is easily destroyed by fumigation or Quassia extract, or, better still, should be prevented by spraying the trees before and after they have flowered with Quassia extract; two or three times during the growing season will be sufficient. You can use at this season as a liquid manure, one ounce of sulphate of potash, or half-an-ounce of phosphate of potash per gallon of water. If it is desired to apply potash, this should be applied in early winter, when the roots are at rest, and provided the necessary lime is present sufficient potash will remain in the soil for the roots in the following spring and summer.

Apple and Pear Leaves Scorched.—*G. F. P.* The Apple foliage shows signs of leaf-scorch. The Pear foliage shows similar damage, and this may be due to inadequate drainage. The roots may have either penetrated into an unsuitable medium, or they are lying on top of a "pan" so that they become saturated with water. Pay attention to the drainage and ascertain the position of the roots by digging a trench around the trees about four feet away from the main stem, in late autumn.

Copper Beech Trunk Rugged at Base.—*H. L.* As you suggest, the roughened portion at the base of your Copper Beech tree is probably the junction of the stock and scion.

Chrysanthemum Foliage Curling.—*G. E. W.* The cause of the Chrysanthemum foliage curling is due to a mite, Tarsonemus species. The damage has been going on for some time and mites are still to be seen on the leaves. The remedy is to use either a sulphur-soap dip, or to spray both surfaces of the foliage with Volck, which allows the new growth to grow away clean and free from infection.

Horse Chestnut Tree Diseased.—*W. C.* The Horse Chestnut tree, of which a specimen was sent, has apparently died from fungus injury. It is quite likely that the trouble occurred through root injury either by the roots becoming too wet, or the ground may have, at some time, become very dry; either condition would probably have the same effect. It is impossible, without examining the tree and the conditions under which it is growing, to state what has actually caused its death, but everything points to root trouble. So many as possible of the roots should be dug out and if a young tree is planted new soil should be introduced.

Lawn Sand.—*H. J. H.* Lawn sand is made in a variety of ways, and with different materials or mixtures, but usually consists of sulphate of ammonia, in a dry and very finely powered state, and very fine sand, also dry; coarse materials are liable to roll off the leaves of weeds and be lost. Some gardeners use sulphate of ammonia and sand in equal parts, which is a strong mixture if put on thickly by any distributing machine, like a broadcast corn-sower, which, however, has a contrivance for regulating the amount distributed. If you desired to weaken the mixture you could use one part of sulphate of ammonia to two parts of sand. A modification is to use one part of sulphate of ammonia, half a part of common or table salt, and two parts of sand. The first two have a more powerful effect upon the weeds, while they do not have the same effect upon the roots of the grasses, because they do not utilise common salt, and could only take up a certain amount. The day should be fine, and the grass dry when either of the above lawn sands are applied. They begin to act within an hour of application. Fine sand can be found in your own immediate neighbourhood.

Lupins Dying.—*H. V.* The Lupin plants show signs of infection from the root-decaying fungus, Thielavia basicola. Plants growing in poorly-drained soils are more liable to attack than those growing in well-drained soil. Apply a dressing of sulphate of potash (one ounce to the square yard) in autumn and early spring around the infected plants.

Names of Plants.—*E. M. B.* Cannabis sativa.—*C. C. T.* Cercidiphyllum japonicum.—*C. H. C.* Euphorbia marginata.—*Mona* 1, Nandina domestica; 2, Bougainvillea glabra var. Sanderiana variegata; 3, Rhoeo discolor; 4, Panex fruticosum var. Guilfoylei; 5, Sanchezia nobilis; 6, Isoloma hirsutum; 7, Aglaonema Haenkii; 8, Heliconia psittacorum; 9, Alocasia macrorhiza var. variegata; 10, Strobilanthes Dyerianus; 11, Pellionia Daveauana; 12, Acalypha marginata; 13, A. Hamiltoniana; 14, Nephthytis liberica (green), and N. picturata (variegated).—*A. H. S.* 1, Sedum rupestre; 2, S. spurium var. album; 3, S. reflexum; 4, S. spurium. *A. Z.* 1, Anthemis tinctoria; 2, Scolopendrium vulgare, a depauperate form; 3, Cyrtomium falcatum; 4, Erigeron speciosus.—*H. B.* Rose Veitchenblau.—*H. E. J.* 1, Ailanthus glandulosus; 2, Qiercus coccinea; 3, Q. palustris; 4, Picea orientalis; 5, Pinus Strobus; 6, Cupressus Lawsoniana var. albo-spica; 7, Sequoia sempervirens; 8, Thuya dolabrata; 9, Cupressus sempervirens; 10, Juniperus virginiana; and 11, Cedrus Deodara.

Peach Leaves Mildewed.—*A. S. G.* The Peach leaves are suffering from a severe attack of mildew, and some red spider is present on the lower surface. The general appearance of the foliage suggests that some cultural defect, such as faulty watering, is also responsible for the trouble. Constant care has to be taken in the cultivation of these trees and more attention must be paid to the state of the border in which they are growing. Dust the infected foliage when it is moist after syringing with green sulphur.

Tomato Foliage Diseased.—*C. A. W.* The Tomato foliage is suffering from an attack of leaf-mould, due to the fungus Cladosporium fulvum. The most satisfactory control method is the provision of a dry atmosphere and efficient ventilation in the house. Trim off excess foliage to allow free circulation of air around the plants. Dusting the plants with green sulphur when the foliage is moist will act as a preventive to the spread of the disease.

Walnut Tree Failing to Fruit.—*R. W.* It is quite probable that your Walnut tree will produce fruits again next year. There is no need to supply any special dressing to the soil. Its failure during the present season to produce fruits may be due to some local peculiarity, or the frosts of the last two seasons may have weakened the tree to some extent. There does not appear to be any cause for alarm as to the health of the tree or its future fruiting.

Communications Received.—H. N.—H. P.—J. B.—G. E. P.—G. S.—R. L. H.—C. R.—A. W.—H. W.—A. O.—R. B.—D. W.—D. C. S.—R. H. S.—C. M.—A. M. B.—A. G.—C. C. H.

NEW HORTICULTURAL INVENTIONS.

NEW PATENTS.

These particulars of New Patents, of interest to readers, have been selected from the *Official Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

24,313.—International Harvester Co.—Fertiliser distributors. August 8.

24,430.—Myers, E. A.—Apparatus for distributing soluble fertilisers, etc. August 9.

23,206.—Bishop, W. H. and Smith, H. A. G.—Gardening implement. July 29.

23,398, 23,400, 23,401, 23,402.—Berdell, T. van D., and Holz, A.—Fertilisers. July 30.

Specifications Published.

316,122.—Gardener, D.—Soil fertilisation.

315,998.—Scarlett, R.L.—Seed-sowing implements.

298,196.—Stockholms Superfosfat Fabriks Aktiebolag.—Process for manufacturing a fertilising mixture capable of being strewn.

301,738.—Gonyk, I.—Scythes, straw-knives, and the like.

315,645.—Peel, C. H.—Lawn-mowers.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2., at the uniform price of 1s. each.

Abstract Published.

312,738.—Ploughs.—Falconer, D., 5, Carlton Street, Edinburgh.

Tools.—A coulter adapted to turn the soil partially over comprises a blade having curved edges converging towards its forwardly projecting lower end, a convex back, and a concave active face inclined to conform approximately to the line or run of the mouldboard. The blade may be bolted to the shank or made in one with it.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the *Official Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

REDOMITE.

504,075.—Chemical substances used for agricultural and horticultural purposes.—Murphy and Sons, Limited, Wheathampstead House, Wheathampstead, Herts. August 21.

SUPERPHOSPHAMMO.

502,814.—Fertilisers.—Synthetic Ammonia and Nitrates, Limited, The Chemical Works, Chilton's Lane, Billingham, Stockton-on-Tees. August 14.

SONNAL.

499,567.—Cutlery and edge tools.—Hugo Pasch, 1, Kanalstrasse, Solingen, Germany. August 14.

GRANCRETA.

503,357.—Fertilisers and Manures.—The Grancreta Company, Limited, Arundel Chambers, 10, St. Paul's Street, Leeds, Yorkshire. July 31.

THE
Gardeners' Chronicle
No. 2229.—SATURDAY, SEPTEMBER 14, 1929.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 56·8°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, September 11, 10 a.m. (Greenwich time). Bar. 30·2. Temp. 66°. Weather, fine.

Virus Diseases of the Potato.

THE most recent researches* into Potato virus diseases, made by Dr. Kenneth M. Smith, at the Potato Virus Research Station, Cambridge, add considerably to the knowledge of the nature and behaviour of these extraordinary maladies. The virus disease which has been investigated by Dr. Smith is Mosaic. It has long been suspected that the agents which disseminate Mosaic are Aphides, and now Dr. Smith has succeeded in demonstrating beyond cavil that the Aphis, Myzus persicae, is the culprit, and that perhaps this Aphis has an accomplice in another Aphis, Macrosiphum gei, in the work of distributing Mosaic from Potato to Potato plant. Although, if we may judge from the prevalence of Potato Mosaic, infection in nature must be easy enough, it would appear to be by no means so easy to induce Mosaic under artificial conditions. Nevertheless, the evidence obtained by Dr. Smith appears to be conclusive that Aphides are the agents which disseminate the disease. Attempts to discover other carriers among the insect visitors of the Potato have so far proved unsuccessful in all cases with the possible exception (already mentioned) of the Aphis, Macrosiphum gei. Attempts to ascertain how the Aphis inoculates the Potato plant have so far proved unsuccessful. Extracts of the body juice of the salivary glands of M. persicae which had lived freely on Potatos infected with Mosaic failed, when injected into healthy Potatos, to bring about infection. Yet, curiously enough, it is easy to cause Aphides of the infective species to bring about disease in Tobacco plants. Although the disease induced in the latter is not identical with Mosaic, so far as symptoms are concerned, there can be no doubt but that it is brought about by the virus which causes Mosaic in Potatos. Moreover, the scratch of a needle may be used to transfer virus from a Potato affected by Mosaic to a susceptible variety of Tobacco, and as a result of the inoculation a disease named Ring Spot is induced, the symptoms of which are similar, although not identical, with those which occur when the Aphis inoculates Tobacco plants with the Mosaic virus. That Mosaic of Potatos is due to the same virus as Ring Spot of Tobacco is proved by the fact that when healthy Potatos are inoculated with the juice of Tobacco plants infected with Ring Spot they develop Mosaic disease in a more virulent form than that which characterised the Potato from which the virus was originally taken. Evidently, therefore, evil communications corrupt not only good, but also bad manners. Once this intensified virus is planted in the Potato it may be spread with ease from Potato to Potato by the simple means of a needle scratch, but, curiously enough, the Aphis, Myzus persicae, does not appear capable of transferring the intensified virus from one Potato plant to another. Finally, and not the least interesting of these researches, it has been shown by Dr. Smith that the virus of Potato diseases and of Tobacco Ring Spot is a filter passer. Juice of a Potato plant infected with the intensified Mosaic and from a Tobacco plant infected with the Ring Spot, may be filtered through Pasteur Chamberland filters—which arrest ordinary micro-organisms—and still retain the power of setting up these diseases in Potato and Tobacco plants, respectively. It is some relief to learn that the virus of Tobacco Ring Spot, which, as already explained, is derived from that of Potato Mosaic, is not able to set up disease in every kind of plant. Inoculated in Tomatos it only mottles the leaves. In Petunias it causes mottling, with some distortion, but with Solanum nigrum, Spinach and Cabbage it produces no symptoms. Clearly we are at the beginning of a new and vastly important epoch in the history of discovery of the nature of plant diseases, and, as is usual with beginnings, things look very puzzling and difficult. Nevertheless, at the rate at which knowledge is progressing, it will probably not be long before some of these strange mysteries of Mosaic and other virus diseases are resolved, and who knows, perhaps with this knowledge may come means of getting rid of them!

John Cypher Memorial.—The following contributions, or promises, have been received for the fund that is being raised to provide a memorial to the late Mr. John Cypher, V.M.H.:—Southport Flower Show Committee, £25; Alderman C. Aveling, Southport, £5; Mr. R. F. Felton, Hanover Square £25; Mr. W. B. Cranfield, Enfield, £2 2s.; *The Gardeners' Chronicle*, Ltd., £5 5s.; Mr. Charles H. Curtis, £2 2s.; Mr. C. H. Taudevin, Willaston, Birkenhead, £1 1s.; Mr. F. Jordan, Lingfield, £1 1s.; Mr. T. Hay, Hyde Park, £2 2s.; Mr. H. Hicks, Manchester, £1 1s.; Messrs. Dickson and Robinson, Manchester, £2 2s.; Mr. G. M. Taylor, Portobello, £2 2s.; Mr. H. G. Alexander, Tetbury, £1 1s.; Rev. A. C. Hall, Southport, £1 1s.; Mr. C. H. Cook, Windsor, £1 1s.; Mr. T. J. Nelson, Ashby Lodge Gardens, Chesterfield, 10s.; Mr. R. L. Harrow, Edinburgh, £1 1s.; Mr. Cyril Lockwood, Sheffield, £1 1s.; Mr. James Gutteridge, Sefton Park, Liverpool, £1 1s.; Mr. J. Brook, Mayor of Southport, £5 5s.; Mr. J. H. Wood, Fitzroy Street, W., £2 2s.; Mr. R. Findlay, Wisley, £1 1s.; Mr. D. Campbell, Regents Park, £1 1s.; Mr. A. J. Macself, *Amateur Gardening*, Aldersgate Street, E.C., £1 1s.; Mr. T. Pateman, Brocket Hall Gardens, 10s. 6d.; Mr. Peter Blair, Trentham, 10s. 6d.; Mr. A. E. Perkins, Coventry, £1 1s.; Mr. T. H. Cook, Sandringham, £1 1s.; Mr. David Cuthbertson, Edinburgh, £2 2s.; Dr. F. W. Stansfield, Reading, £2 2s.; Mr. R. Manning, Dudley, £2 2s.; Mr. A. H. Holmes, Chesterfield, 10s. 6d.; Mr. W. H. Stansfield, Southport, £1 1s.; Mr. Allan Falconer, Cheadle, £1 1s.; Mr. C. Cooper, of Messrs. J. Peed and Son, £1 1s.; Mr. A. Mason, Newby Hall Gardens, Ripon, 4s.; Mr. J. Walker, Finney Lane, Cheadle, 5s.; Mr. N. F. Barnes, Eaton Hall Gardens, £2 2s.; Mr. T. A. Longworth, Park Villas, Manchester, £5 5s.; Mr. J. S. Brunton, Burnley, £5 5s.; Mr. R. Greenfield, Leamington Spa, £1; Mr. W. H. Kitching, Warter Priory Gardens, York, 5s.; Mr. J. Hathaway, Baldersby Park Gardens, Ripon, 5s.; and Mr. J. Benstead, St. Nicholas Gardens, Richmond, Yorkshire, £1. Contributions should be sent to the Hon. Secretary and Treasurer, Mr. Charles H. Curtis, 5, Tavistock Street, Covent Garden, London, W.C.2.

Legacies to Gardeners.—Mrs. Albinia Mary Lyon, of The Grove, Teignmouth, who died on May 3, left £50 to her gardener, Mr. William Milliam, if still in her service.—Mr. Thomas Ritchie, of Watercroft, Penn, Buckinghamshire, left £10 for each year of service to his gardener, Mr. Henry Wadley.—The Earl of Durham, of Fenton House, near Wooler, Northumberland, who died on January 31, 1929, left £100 each to his gardeners, Mr. Alec Scott and Mr. W. Pattie.—Colonel C. W. H. Lowther, of Hurstmonceux Castle, Sussex, left £250 to his gardener, Mr. William Parker, and £50 each to Messrs. Dann, Billingness and Hall, under-gardeners.—Mr. Orsini Stuart, of Elm House, Seaforth, left £65 to his gardener, Mr. William Hurst.

German Park Superintendent's Long Service.—Herr Ludwig Simon, Parks Superintendent of the German town of Gelsenkirchen-Buer, completed on July 15 his thirtieth year in the service of the municipality. He was born in 1870 in the Province of Saxony. In 1899, after a period spent in obtaining varied experience in gardening, he was entrusted with the care of the South Park in Ueckendorf, which was later included in the municipality of Gelsenkirchen, of which town he later became Superintendent of Parks and Open Spaces. He has exceptionally wide knowledge and experience in all matters pertaining to his work, and the excellent appearance of all the numerous open spaces under his care testifies amply to his unremitting attention and devotion to his task.

A New Michelia.—In the Kew *Bulletin of Miscellaneous Information*, No. 7, 1929, Mr. J. E. Dandy records a new Michelia from the borders of Tibet and Assam. It was collected by Captain F. Kingdon Ward in the region of the Mishmi Hills, during 1928, and has been named Michelia Wardii. In this *Bulletin* Mr. W. B. Turrill continues his notes on the flora of the Nearer East; Mr. Karel Domin contributes "New Ferns from Tropical America and the West Indies," and Mr. T. A. Sprague informs us that under International Rules and American Code, the correct name of Shrub Yellow-root is Xanthorhiza simplicissima, Marsh, not Zanthorhiza apiifolia, L'Hérit.

Certification of Black Currant Bushes in Scotland.—The Department of Agriculture for Scotland announces that the inspections, in connection with its scheme inaugurated this year, for the certification of Black Currant bushes grown in Scotland and intended for sale. have now been completed. Certification of bushes has followed, so far as possible, the following group classification adopted by the East Malling Research Station:—1, French; 2, Boskoop Giant; 3, Victoria or Goliath; and 4, Baldwin. The Certificates issued as a result of the inspections relate solely to the purity of the stocks and their apparent freedom from Reversion, and are not to be regarded as guarantees of complete freedom from disease. Care has been taken, however, not to certify stocks which were found to be obviously unhealthy or lacking in vigour. Certificates are valid only up to April 30, 1930, and growers to whom they have been issued have given undertakings that they will be used only in connection with the bushes actually inspected and certified by inspectors of the department. A list of the stocks certified this season, together with the names and addresses of the growers, may be obtained upon application to the Ministry.

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* "Studies in Potato Virus Diseases, No. IV. Further Experiments with Potato Mosaic," by Dr. Kenneth M. Smith; *The Annals of Applied Biology*, XVI, Feb. 1, 1929.

Belgian Market Salesmen's Reunion.—On Sunday, August 25, the Brussels Market Salesmen's Club celebrated the twenty-fifth anniversary of its foundation, in the Gothic room of the Town Hall. The members went in procession to the Hall, where they were received by the Burgomaster, M. Adolphe Max. M. Fernand De Clercq, the President of the Club, introduced the members to M. Max. M. Louis Bracke, President of another more recently-formed Market Club (l'Amicale) also spoke, and M. Max replied. The reception over, the members passed on to the headquarters of the "Amicale" Club, where a handsome medal was presented to M. René Borremans, the chief commissary of the Town Markets. The Company then went on to the headquarters of the Market Salesmen's Club, where the rooms were gaily decorated with flowers for the occasion, and thus ended a ceremony very typically "Bruxellois."

Trials of Novelty Sweet Peas.—Mr. J. Stevenson has kindly offered to grow the National Sweet Pea Society's 1930 trials of novelty Sweet Peas at his New Milton grounds, Dorset. The Committee has decided to shade salmon and orange-coloured varieties, when desired, at an additional charge of 2s. 6d. per variety, to pay the cost of shading. The fee for unshaded varieties is 7s. 6d. per set. Not fewer than thirty-six seeds of each variety are required for trial. Raisers who wish their novelties to be included are asked to notify the Secretary, 19, Bedford Chambers, London, W.C.2., who will send the required number of seed pockets.

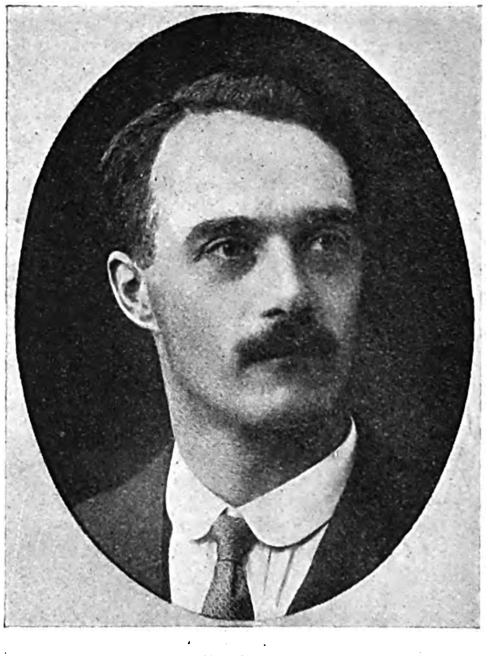
Rice Grass.—The Ministry of Agriculture has recently issued a pamphlet on Rice Grass and its economic possibilities (Miscellaneous Publication No. 6, price 8d. post free). It will be of particular interest to those concerned in protecting land from inundation from the sea, as Rice Grass is a very powerful means of consolidating marshy land and maritime muds. Its root systems become very extensive and deep-seated, and its grass is of a type suitable for fodder for farm stock. Successful work with this grass has been carried out in Holland and certain parts of the coast of this country, particularly in the south of Hampshire, Poole Harbour, and in Essex.

Essen Horticultural Exhibition.—The International Horticultural Exhibition now being held in Essen, Ruhrland, Germany, is attracting immense throngs of visitors. Up to August 19 (on which day there were about 50,000 present) 800,000 people had visited the show, comprising a great number of different nationalities.

Sweet Pea Show in Brussels in 1930.—The Sweet Pea Exhibition in Brussels is not long over, but the indefatigable officials of the Society, known as "Les Amis des Pois de Senteur," are already planning next year's show, which, in view of the importance of the celebrations taking place in 1930 for the centenary of Belgian independence, is to be of an international nature. It will take place in Brussels, on June 28, 29 and 30, and enquiries for space have already been received from a number of firms, including some from half-a-dozen different foreign countries. Valuable prizes are to be offered for competition, and a large concourse of visitors is almost certain.

International Peace Garden in America.—If the proposal advanced at the recent annual convention of the International Association of Gardeners, and referred to at length in our issue of August 31, p. 168, is accepted, a four-hundred-acre International Peace Garden at some point on the boundary between Canada and the United States will be established. The delegates at the Convention considered the best memorial to mark the peaceful relations which have existed between the two countries for more than a century would be a spacious flower garden. The exact location of the garden is to be discussed at a future meeting. It is proposed that two hundred acres shall be in the United States territory and two hundred acres in Canadian. A suggestion to raise a fund of $5,000,000 for the project was advanced, the money to be raised by inviting adults in Canada and the United States to contribute 25 cents. each and children 5 cents. Leading men of both countries have expressed their approval of the proposal.

Mr. Alex. S. Hay.—After attending the County Grammar School, Market Harborough, for three years, Mr. Alex. S. Hay commenced his gardening career under his father at Hothorpe Hall, Leicestershire, the residence of C. E. de Trafford, Esq. At Hothorpe Hall he passed through the various departments and received a good all-round training. In 1915 he joined His Majesty's forces and saw considerable service in France. On the cessation of hostilities, Mr. Hay returned to Hothorpe Hall, and took charge of the glasshouses for a short time before passing on to Welbeck Gardens, Worksop, under Mr. James Gibson. There he remained five years, during the last four of which he held the position of general foreman. From Welbeck, Mr. Hay went to Stagshaw House, Corbridge, the residence of J. C. Straker, Esq., to take charge of the gardens there, and he has now occupied this position for five years. During these five years most of the glasshouses have been rebuilt and the fruit trees replaced. The Rose garden has been altered, and alterations on the front of the house and in the rock gardens are being carried out. Mr. Hay is Chairman of the Corbridge Chrysanthemum Society, and is a well-known exhibitor. Last season was his most successful one as an exhibitor, his final success being the winning of the W. F. Henderson Silver Cup for Chrysanthemums at Newcastle.



MR. ALEX. S. HAY.

Cactus Exhibition in Frankfurt.—From August 3 to 26, an exhibition of Cacti was held in the greenhouses of the Palm Garden in Frankfurt a/Main, Germany, which was visited by many people and proved a great attraction. Cactus culture is already very popular among amateurs in Germany, and the taste for it appears to be growing steadily.

Presentation to Mr. J. B. Jack.—A deputation of the Hamilton and District Gardening and Forestry Association met recently at Redholme, Woodside Walk, Hamilton, to do honour to one of the Vice-Presidents, Mr. J. B. Jack, of Motherwell Parks Department, on the occasion of his leaving for America. Mr. Gibson, President, invited Mr. Graham to make the presentation, which he did in a few well-chosen words, and handed Mr. Jack a gold watch, beautifully inscribed, as a recognition of the work he had done among the members of the Association. Mr. Jack thanked all who had subscribed to the gift, and hoped that the Association would continue to flourish. The members very much regret the loss of a capable gardener and adviser. Mr. Jack has filled important positions in some of the best establishments in Scotland, and during his stay at Motherwell has shown great taste in the design of his floral displays. He also excelled in the cultivation of Chrysanthemums, his annual displays of these never failing to draw large crowds to the park. Mr. Jack was held in high esteem by all members oft he Parks Department, who presented him with a Masonic emblem in gold.

Bee Exhibition in Berlin.—Early in August 9 to 12, an international meeting of Bee enthusiasts was held in Berlin, under the auspices of the Apis Club. There were visitors from almost every civilised nation, and a varied programme of discussions, demonstrations, etc., found ready acceptance. The visitors were delighted with the very complete section dealing with bees and apiculture in the Berlin Museum, and also with a steamer trip to the Bee farm of the apicultural institute.

Liege Exhibition, 1930.—During the spring and summer of 1930 (the centenary year of Belgian independence) an international agricultural and horticultural exhibition will be held at Liege, which is recognised by the Government, and is likely to be of considerable importance. A piece of parkland, about fifteen hectares in extent, on the banks of the beautiful River Meuse, has been set aside for the exhibition, and besides a permanent exhibition, there will be temporary shows of various plants and flowers according to the passing seasons. English and other horticulturists desiring space should apply to the exhibition authorities, at 4, Place St. Lambert, Liege, Belgium.

Suggested Improvements in the Royal Parks, London.—A statement issued by the Office of Works is to the effect that the First Commissioner of Works, Mr. Lansbury, has received several promises of assistance from generous persons towards the cost of providing shelters and other amenities, particularly in the interests of the children, in the Royal parks. Among others, offers of £500 each have been received from Sir Arthur du Cros and Mrs. Van den Bergh. A donor, who wishes to remain anonymous, interviewed the First Commissioner of Works, and in additon to promising a sum of £500, undertook to give a sum of money up to £5,000, provided the Government would agree to contribute an equal sum, for the purpose of providing facilities for children and also to render it possible for both sexes to bathe in the Serpentine and for sun-bathing. Mr. Lansbury gladly accepted the offer, subject to the approval of Parliament.

Allotments in Distressed Mining Areas.—Among the questions considered by the Central Joint Committee of the Lord Mayor's Fund for the Relief of Distressed Mining Areas in England and Wales, was that of allotments. The Interim Report of the Committee, published in July, states that the Committee were unable to deal with the matter until very late in the season this year; but the principle of giving assistance towards the proper cultivation of allotments by unemployed persons in distressed mining areas was strongly approved, and Divisional Committees were instructed to co-operate with the various County Agricultural Committees in their areas and with the Society of Friends, who had already been at work on allotment schemes in many areas, in order to render the maximum amount of assistance. Full details of the work carried out were not available at the time this Report was prepared, but it was clear that a very large number of allotments have been kept under cultivation that would otherwise have become derelict. Assistance has been given to between 60,000 and 70,000 allotment holders, mainly in South Wales, Durham and Yorkshire, the total cost of the service being approximately £15,000. The assistance has taken the form of the provision, after investigation, at a reduced or nominal rate, of seeds, seed Potatos, fertilisers and, where necessary, fencing material. In some cases, arrangements were made to spread the small payments required from recipients over the summer months. The Committee hopes to provide for this work to be carried out more extensively and thoroughly next season, when more time will be available to make the necessary preliminary arrangements. In the meantime, it is satisfied not only that the expenditure incurred has provided a quantity of food where it was badly needed, but that the work involved in the cultivation of allotments has provided some occupation and incentive for a number of men, and has been a definite factor in the improvement of "morale." Enthusiastic reports have been received from the Allotment Committees operating in all the areas.

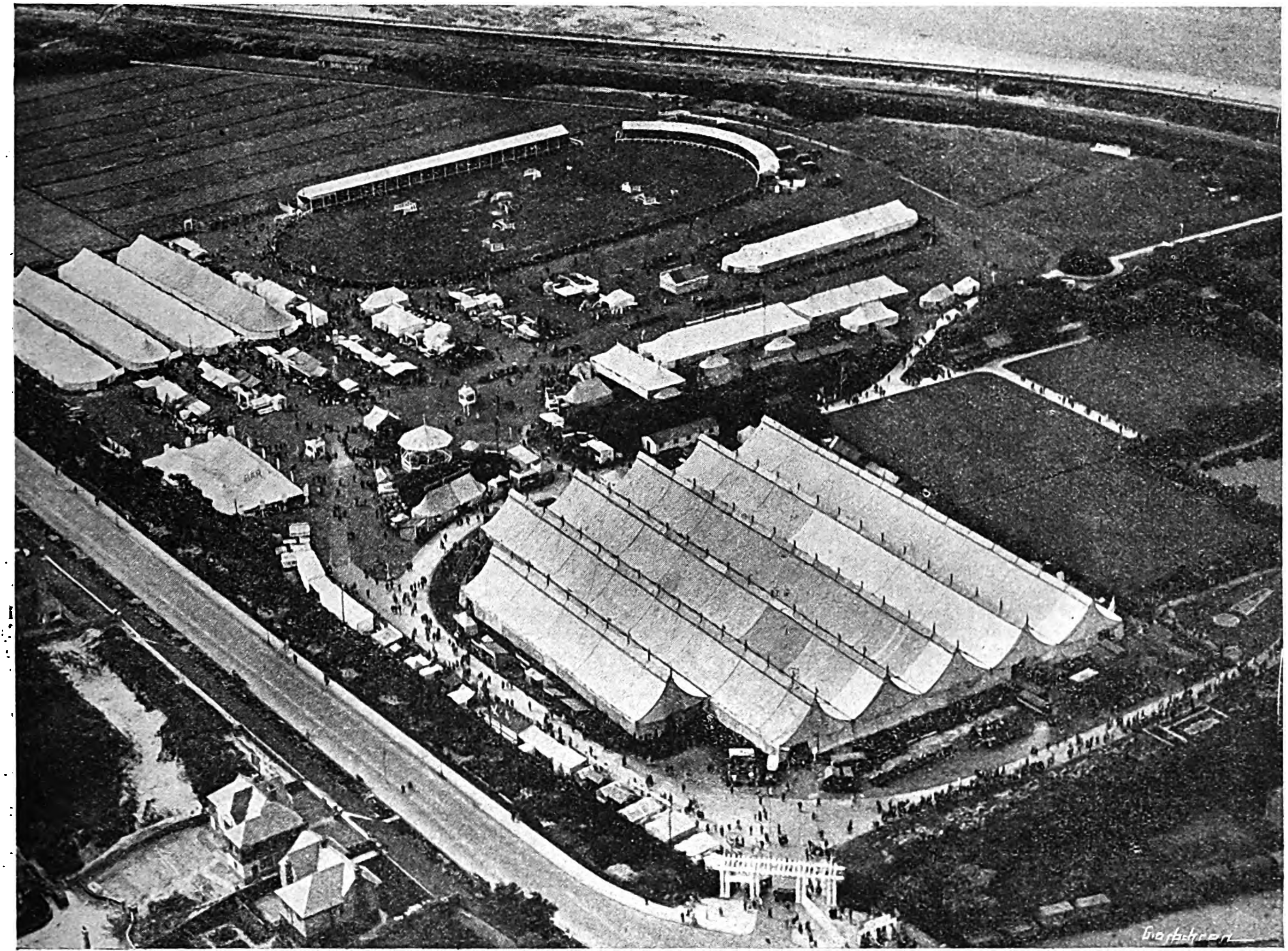


FIG. 97.—SOUTHPORT SHOW: VIEW OF THE EXHIBITION GROUND TAKEN FROM AN AEROPLANE.
(See p. 191).

Horticultural Trades Association Annual Meeting.—The Annual General Meeting of the Horticultural Trades Association will be held at Worcester on September 24 and 25, when many subjects of interest to the horticultural trade will be discussed. One resolution to be proposed is "that a Committee of Past Presidents be formed to nominate the President each year."

Masters' Memorial Lectures.—We draw the attention of our readers to the Masters' Memorial Lectures. The lectures will be on "The Relationship between Scion and Root-stock, with special reference to the Tree Fruits," and will be delivered by Mr. R. G. Hatton, M.A. The dates originally fixed for these lectures were October 2 and October 8. Unfortunately, however, through the regrettable illness of Mr. Hatton, the dates of these lectures have had to be postponed to Tuesday, November 5, and Tuesday, December 10, at 3 p.m. The Masters' Memorial Lectures were founded by the Society in 1909 in commemoration of Dr. Maxwell T. Masters, F.R.S., the great advocate of "Science with Practice," and Editor of *The Gardeners' Chronicle* from 1865 to 1907.

Appointments for the Ensuing Week.—TUESDAY, SEPTEMBER 17: Winchester Horticultural Society's meeting. WEDNESDAY, SEPTEMBER 18: National Chrysanthemum Society's Executive Committee's meeting. THURSDAY, SEPTEMBER 19: Royal Horticultural Society's Autumn Show (two days); Ipswich Gardeners' Association's meeting; Thame Show. SATURDAY, SEPTEMBER 21: Worcester Park Horticultural Society's Exhibition; Gainsborough Allotment Holders' Association's Show; Leeds Paxton Society's Autumn Vegetable Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Sunflower.*—Among my papers I find the enclosed—it was drawn out from information I had received of the value of the Sunflower, and sent some time since to New South Wales, where I thought it might eventually prove useful when labour became cheap, which at present does not seem very probable. It has struck me that it might be well suited for introduction into the Madeira Islands, where they require some new export, since their staple produce, the wine, is failing from the effect of vine disease. It may also serve, if my information on the subject is correct, as a material for paper-making. There is time this season to try the experiment on a small scale, from any small number of seeds and stems which you may be able to collect; and if it turns out that only one-half can be done of that which is stated, it will be useful, and worth the trial. "The Sunflower (Helianthus annus) is propagated by seed, which, sown in the spring, produces seed again in the autumn. It grows rapidly and exhausts the soil like Tobacco or any other drawing crop, and is particularly suited for woodland or rich alluvial land newly broken up, which generally renders the growth of Wheat, etc., too luxuriant for the production of seed. The plant grows large, and 2½ lbs. of seed are required for an acre of land, which it is stated will produce one-and-a-half ton of seed, two tons of stems and branches, which when stripped will yield one-and-a-half ton of silky fibre and half-a-ton of coarse fibre, and two tons of leaves. The ton-and-a-half of seed husked will produce 340 lbs. or ninety-three gallons of oil fit for table use or for lamps, as well as for machinery and manufacturing purposes. The oil is so pure and free from aqueous particles that it is particularly suited for watchmakers and all the finer parts of machinery. The seeds are also valuable as an article of food, making, when ground into flour, excellent bread, pastry and biscuits. The finer fibre of the stems is suited for making all descriptions of paper, and the coarse for the manufacture of ropes, mats, cordage and canvas. The leaves are superior green-food for cattle, and the cake remaining, after the oil is pressed from the seeds and husks, is valuable for fattening them. Any part of the plant not required for any of the above purposes yields, by burning, excellent potash for manufactures or for manure." *B. Gard. Chron., September* 16, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Duckyls Park, East Grinstead, Sussex.

Sobralias.—Specimens of this finely-coloured, large-flowered Orchid may be repotted if necessary directly the flowering season is over, care being taken to avoid injuring the fleshy roots so much as possible, especially when large plants have to be divided. As these Reed-like growers are robust-rooting plants, ample room should be allowed for development. Use well-drained pots or deep pans, with a compost consisting of equal parts of loam, A.1. fibre and leaf soil, adding crushed crocks and charcoal to keep it open. Water sparingly until the roots are moving freely in the new compost, when the supply should be increased each time the soil approaches dryness. Shade should be provided from bright sunshine and the foliage syringed frequently during favourable weather. These Orchids are very accommodating, but they thrive best in the intermediate house. During winter, less water will naturally be needed, but the plants should never be subjected to long periods of drought. Some of the older Reed-like growths may be cut out to allow more light and air to reach the younger growths.

Epidendrum vitellinum.—Both the summer- and autumn-flowering varieties of this brilliantly coloured Orchid have grown well during the bright weather experienced throughout the early summer months, especially if the plants have been able to receive the benefit of the sunlight, being shaded only during the hottest part of the day to prevent injury to the foliage. These Mexican Epidendrums revel in sunlight during the growing season, provided plenty of fresh air is admitted and a moist atmosphere maintained; the fine appearance of the pseudo-bulbs and the beautiful sheen on the foliage testify to their preference for these conditions. A position in a cool house, similar to that required for growing and flowering Cymbidiums successfully, appears to suit them admirably, for although the temperature will naturally rise fairly high with the sun-heat allowed, and extra damping is required, which, together with plenty of fresh air, tempers the heat so that only a light shade from strong sunshine is necessary. Night ventilation on all favourable occasions is beneficial, as it invigorates the plant. So long as the weather remains favourable these conditions should be maintained, with a slight decrease in the amount of damping on the approach of longer and moister nights; a little less air should be admitted if the weather turns chilly, when, however, it is better to use a little fire-heat instead of closing the ventilators altogether. As the growths advance and the flower sheaths appear on the partly-made pseudo-bulbs, ample supplies of water will be needed at the roots each time the compost approaches dryness, but later on, as the flowers begin to expand, drier atmospheric conditions should be maintained, and sufficient water only afforded to the roots to enable the buds (which continue to open for a long period) to grow and expand, and so provide a display of flowers for many weeks. After the flowers are removed and growth is complete, drier conditions at the roots should be maintained and the plants allowed a partial rest.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

Fruit Tree Stocks.—Stocks are employed for various reasons, first, as a ready means for increasing a particular variety of fruit; second, to produce some alteration in the habit and bearing of the tree; and third, to fit certain varieties for some particular soil. With Apples, it has been shown by Mr. Hatton, at East Malling, that it is possible by the use of different types of layered Apple stocks, the so-called Paradise, to obtain a large measure of control over the vigour of the tree, as expressed in the amount and rate of growth, in the habit of growth and fruiting, the season of blossoming, and the age at which the tree produces blossom and fruits. It was apparent to growers for some time that, although these Paradise stocks were all reputed to be dwarfing, several types showed excessive vigour, in many cases equal to that of the free and Crab stocks. Investigations were started at East Malling, and it was found that the name Paradise had been indiscriminately applied to some seventeen different varieties. Moreover, these varieties were frequently badly mixed together and, although some of them had distinct names, these names were seldom correctly used. It required much patience and time to rogue and classify these stocks, but the result has been highly satisfactory. The first plantations of trees, worked upon this range of true, layered stocks, were planted out in the early months of 1919 and 1920, and they have already demonstrated beyond dispute that root-stock has a fundamental influence upon the whole future of the tree. For all practical purposes, only a small number of the so-called Paradise or layered stocks need be considered, and these may be grouped according to their outstanding influences, the remainder being eliminated for some fault or another. The most important types fall more or less distinctly into four groups, as follows:—(a) Very dwarfing; Jaune de Metz (Type IX), which is specially suitable for cordons, pot fruit trees and bush trees for small gardens; owing to the nature of their roots they must be permanently staked when grown in the open. (b) Semi-dwarfing; the Doucin (Type II), suitable for strong-growing dessert varieties in bush form, and where early fruiting is desirable; weak-growing varieties, such as Cox's Orange Pippin, Langley Pippin and Lane's Prince Albert, should not be worked on this stock, the cordon form being excepted. (c) Vigorous; Broadleaved English Paradise (Type I), suitable for weak-growing varieties, and large bush trees, or even low half-standards. (d) Very vigorous; represented in the Malling selections by Types X, XII, XIII, and XVI. These are apparently sufficiently vigorous and well anchored to support and develop good standard and half-standard trees. Such a grouping does not imply that other desirable stocks may not be found combining characteristics, but it is an indication of the best use to which readily available material, already in circulation, can be put. Accumulated records have so far gone to show that by a correct choice of stock a strong-growing variety, such as Bramley's Seedling, can be relatively dwarfed and brought into bearing at an early age; or, conversely, a weak grower, such as Lane's Prince Albert or Cox's Orange Pippin, can be invigorated. The nature of the soil should have an important bearing in the choice of stocks for Apple trees. Thus, a variety worked on Type II and planted in a good medium loam, may be a success, but a complete failure if planted in a sandy loam. It would appear that the more fertile and holding the soil, the more need there is for the less vigorous stocks, while the reverse holds good for the sandy soils.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Richardia africana.—Where Arum Lilies were planted out-of-doors as advised, they should now be lifted and potted. The receptacles used will depend on the grower's requirements. If large specimens are required they are best placed in a twelve-inch pot while, on the other hand, if smaller plants are the most useful place strong, single crowns in six- or seven-inch pots. A few days before lifting the plants they should be well watered and cut around with a spade; in the meantime, prepare the compost and receptacles for their reception. Richardias are gross-feeding subjects and require a rich compost, which is best supplied by adding well-decayed manure to the potting soil. If, by chance, the plants have been rested in the receptacles in which they were grown last season, no time should be lost in turning them out and repotting. Careful watering is necessary for a short time, but when in full growth Richardias respond to liberal supplies of liquid manure.

Violets in Frames.—Runners planted out in borders last spring have made excellent plants in spite of the abnormally dry season. They should now be lifted, with good balls of soil, and transferred to their winter quarters so that they may become well established before the short days set in. The frames should be in a position where the maximum amount of light and sun is secured, and, if possible, in a well-sheltered corner, protected from cold winds. Violets resent coddling, hence the necessity for planting them in a sheltered position where the frame lights can be removed entirely in the day-time in other than wet or frosty weather. The plants that are to be lifted should be well watered at the roots the day previous, and again after planting. If the weather is hot and dry, shade them for a few days to prevent flagging. Plants showing leaf-spot should have their foliage sprayed with Bordeaux mixture; if treated now many anxious moments during spells of damp weather will be saved.

Lifting Plants—Bouvardias, Salvias, Solanums and other plants which have been grown out-of-doors during the summer, should now be lifted and potted. The roots should be cut around with a trowel and the soil given a good soaking a day or so previous to lifting them. If prepared in this way they will experience very little check when lifted and placed in their various-sized receptacles, provided they are kept well sprayed and shaded from bright sunshine.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—Those intended for starting early in December should now be nearly ripe; they do not require much water after the foliage is on the turn, but the balls of soil should be packed round with some material to keep them from shrinking from the sides of the pots. The canes cannot be too well ripened, and this should be properly performed before the leaves fall, to secure a season of perfect rest by keeping the canes dry and cool. If all laterals have been removed, shortening back to the proper length may well be delayed for the present. Young canes from eyes inserted this year will also soon be ripe and fit for removal to a light, airy vinery, or they will do equally well against a south or west wall. Like the preceding, they should not be allowed to lack water, hence the importance of plunging them in some light material that water will pass through freely.

Winter Cucumbers.—Where a steady supply of Cucumber fruits throughout the winter is required, the month of September must be devoted to the preparation not only of the plants, but also of the pits which they are to occupy. Remove any old soil, then thoroughly cleanse the house, washing the walls with hot lime and sulphur. Fermenting material may act for a time in place of hot water, moist heat being so essential; heat from hot-beds, with sun-heat, should be equal to the maintenance of a bottom-heat of 80°. If the compost is heavy it may be corrected by the addition of rough charcoal, lime rubble, and, if poor, by a little soot and bone-meal in preference to organic manure.

Pot Figs.—The earliest trees for forcing next season should now be reaching maturity, therefore give every attention to watering and syringing until the foliage falls naturally. After the wood is matured, stand the trees out-of-doors in a sunny, sheltered position until the first appearance of frosts, keeping them clear of the ground, or on a hard base free from worms.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Narcissi.—The earlier these beautiful bulbous flowers are planted the better the results will be the first season. The best of the commoner or less expensive kinds should be planted by the thousand on grassy banks or in the woodland where they will be seen to advantage when in bloom in spring. When naturalising Narcissi in grass endeavour to plant them as irregularly as possible; to attain this it is a good plan to throw the bulbs down in handfuls and plant them where they fall. Do not plant too closely; remember they are expected to grow in such positions for years without being disturbed, and if planted closely they soon become over-crowded and weak. In preparing positions for the rarer or more expensive varieties it is well to bear in mind that no manure should be used in a raw state; they delight in deep, rich soil of a loamy nature, which ought to be well prepared some time before planting. The smaller-flowered species are delightful plants for the rock garden, and pockets of specially prepared soil should be made for their reception. Among such are N. Bulbocodium, which likes plenty of moisture during winter and spring, and grows and naturalises itself freely where conditions are favourable; N. cyclamineus, which prefers a compost of peat, with plenty of moisture during the growing season; N. juncifolius, a tiny but attractive plant with small, Jonquil-scented flowers; and N. triandrus, of which there are many forms, and which is delightful either in pockets in the rock garden or on grassy banks. Where possible, it is advisable to plant a carpet of some low-growing alpine over these bulbs to prevent the flowers being spoilt during stormy weather in spring.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Mustard and Cress.—Where frames are available with the soil close up to the glass, seeds of Mustard and Cress may be sown in them every week; failing this, they may be sown in boxes. Radishes may also be sown in frames, which should be kept close so as to maintain a steady temperature, which, provided the soil is not allowed to become dry, is conducive to rapid growth.

Brussels Sprouts.—Late Brussels Sprouts should have earth drawn up to their stems to secure them against being blown over by wind; if the plants are extra tall, stakes should be provided for their support. If the weather continues dry and the Brussels Sprouts are in soil of no great depth, it may be necessary to water them well.

Dwarf Beans.—If plenty of nine-inch pots are available, fill them with good loam to which a little leaf-mould and sand has been added, and place six to seven Beans in each pot. Stand them outside for two or three weeks, when the Beans will germinate freely. When germination has been completed, transfer the plants to a warm house; these will supply nice young Beans when the outdoot plants have been destroyed by frost. Sow a variety such as Canadian Wonder, which is very reliable.

Endive.—Plants of this salad which were planted early are now of a fair size, and the largest may have the leaves tied up around them to bleach the hearts. Pots placed over the plants will bleach them satisfactorily, but they should be examined at intervals, as Endive is very liable to damp off quickly, especially on damp soils.

Tomatos.—Outdoor plants have set their fruits well and these are now swelling, and it will be found advisable to trim off portions of the leaves so as to allow the sun to ripen the fruits. An application of Clay's fertiliser will be beneficial to the plants at this stage, when every assistance should be given to assist them to ripen their fruits so early as possible.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Onions.—Even in late districts the lifting and drying of Onions should not be delayed or a second growth may begin, owing to the excessive rainfall, and the keeping qualities of the crop suffer. A dry day should be chosen and care exercised not to bruise the bulbs. If spread out on wire-netting raised above the ground, with a sheet of galvanised iron to throw off the rain, the ripening process will be completed in good time; or the Onions may be tied in bunches and suspended, or laid out on the floor of an open shed if desired, for so long as no dampness reaches them and air circulates about them they should finish well; on no account should they be left to dry on the ground.

Vegetables.—On heavy soils the ground has become very sodden by reason of the excessive rainfall of the past few weeks, and no opportunity should be missed of breaking up the surface when dry, as growth is negligible otherwise, and owing to the diminished sunshine, crops are not making the progress one would like.

Sweet Peas.—Plants for flowering indoors in spring should now be sown, and if space permits, the whole crop for next season should be sown at the same time, as spring-sown stock is never so successful as autumn-sown, which may safely be planted in their flowering quarters early in March, and while not showing much top growth for a time, the rooting process goes on apace. Boxes of light, loamy soil should be used for sowing, and the seeds placed in rows at least one inch apart and covered with fine soil, which should not be pressed down, the firming being done before the seeds are sown. Should the soil be dry, afford water; place in a cold frame, and cover the boxes with sheets of glass. When the seeds germinate, remove the glass. If the weather does not allow of them being uncovered, keep the plants close up to the frame lights. When two leaves are made remove the growing point of each plant, and when well broken, pot them singly into two-inch pots.

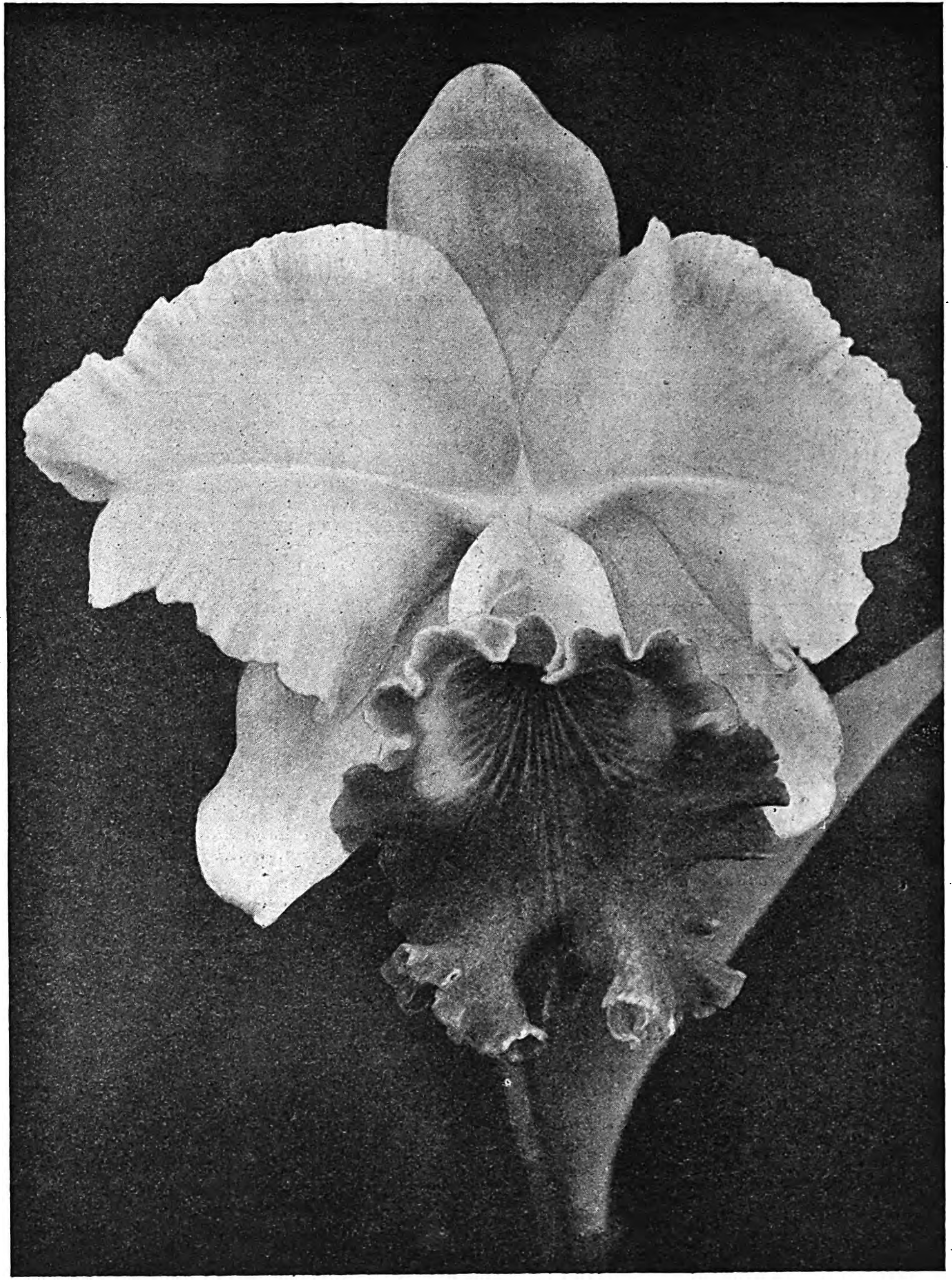


FIG. 98.—LAELIO-CATTLEYA TITYMONA VAR. ROTUNDA.

R.H.S. Award of Merit, August 27. Flowers rose-lilac and velvety, reddish-purple. Shown by R. Paterson, Esq (gr. Mr. A. Merry), Ardingly, Sussex.

(see p. 174.)

INDOOR PLANTS.

PLUMIERIA BICOLOR.

Introduced from the north of South America about the year 1815, P. bicolor, belonging to the Natural Order Apocynaceae, is quite one of our most handsome stove plants. The genus commemorates Plumier, a noted French botanist.

The rather waxy, trumpet-shaped flowers are a fine yellow, gradually shading to pure white at the edges of the petals, which are five in number and overlap. The complete flower is about two inches in diameter and delightfully fragrant. Between twenty and thirty blooms are borne at the apex of the growing stem in a cluster. They do not all open at once, in fact, five or six may be fully expanded while some are still tiny buds. They remain open about four days before falling off.

P. bicolor is a very useful subject to grow, as it provides a succession of bloom over a considerable period. The strap-shaped leaves are about twelve inches long and one inch wide, forming a rosette below and around the inflorescence.

To propagate this beautiful plant, cuttings of well ripened shoots should be inserted in sand during spring and given a little bottom-heat. When rooted, grow them on in a compost consisting of good loam, some fibrous peat and sharp sand. During the winter months they need a lower temperature, and water should be applied sparingly to the roots, only enough being given to prevent shrivelling.

With the return of warmer days, the plants will show signs of life again, and should be repotted if required, and given a higher temperature and an increased supply of moisture. When in full growth, an abundance of water is essential to the plants' well-being. *F. H. Wright, Cambridge Botanic Garden.*

FLOWER GARDEN.

EFFECT OF THE DROUGHT ON HARDY FLOWERS.

The long sustained drought of the present year has given some remarkable evidence of the very small amount of moisture which many plants can exist on, and the very great effect of such moderate falls of rain as we have experienced. I am dealing with a garden where watering on a reasonable scale was impossible, and none whatever was done. Such crops as Strawberries and Raspberries came to an abrupt end for lack of moisture, and Plum and Apple trees show unmistakable signs of thirst; moreover, the meadows around show, both in quantity of hay crop and aftergrowth, the paucity of the season's rainfall. Yet the flower garden has been brilliant throughout the season, and failures owing to drought have been fewer than the exceptional successes which may be put down to the hot, sunny days.

Perennial plants, while affected to the extent of being below average height, lost nothing in floriferousness. Few plants feel the drought so keenly as the Phloxes, and at the end of the hot spell in July it appeared as if they were drying up. The return of cooler weather, and the light rain early in August, revived them like magic, and the display has been, and still is, quite up to the average. Two very fine perennials, Scabiosa lutea, and Centaurea macrocephala, defied the hottest days of July and bore hundreds of their conspicuous yellow flowers. Not unexpected failures were those waterside plants, Lythrum and Spiraea. It is only in a year of considerable rainfall that they are at home in the border.

The handsome, old Bergamot, Monarda didyma gave an unusually brilliant display. Gypsophila paniculata and various Statices have suffered in no way, in fact, rather the reverse. Anchusas have reached their usual height and flowered well. Roses have been very good and growth remarkably free from pests. Probably winter spraying with a tar-oil wash accounts largely for this. Perennials in full flower now, or showing signs of promise in the near future are Artemisia lactiflora, five feet high and masses of white plumes, quite the most showy plant in the borders; Helianthus, Heleniums, Michaelmas Daisies, Pentstemons, unusually brilliant this year; and Rudbeckias.

Among annuals, outstanding successes have been Bartonia aurea (Mentzelia Lindleyi), Phacelia tanacetifolia, Delphinium, Jacobaea, Whitlavia gloxinifolia—never a success in a wet summer; Candytuft, which has surpassed anything I have seen it do before; Antirrhinums and Gilia capitata. Clarkias generally grow too lanky and soft to be really ornamental, but this year these defects were not evident, and the growths were wreathed in flower. Lavatera was really lovely, and, incidentally, I discovered what a fine plant it is for cutting. Flowers in vases lasted over a week indoors, and buds opened in water and surpassed in size the flowers in the borders. Phlox Drummondii and Coreopsis Tiger Star are still very showy, while Asters are uncommonly good. Of Ten-week Stocks, one batch was a great success, but a second lot, planted a week later, were a failure. Clearly just that extra moisture which the earlier plants secured, for a start, made all the difference. Nemesias, after a brilliant display, practically gave up, but have now, with the cooler and moister nights, again become decorative. Zinnias, after disappointing expectations in their early days, have lately come on amazingly, and are now brilliant.

Schizanthus pinnatus, with lilac and purple-spotted flowers, made a great show from mid-June to the end of August. Planted some distance from a border of Nepeta Mussini it overgrew that plant completely, even extending its flowering shoots well over the grass edging. A moist summer would, I imagine, result in prodigious growth and few flowers with this beautiful subject. The annuals which may be stated to have failed owing to drought are, Nigella, Sweet Peas, Calendula and Chrysanthemums. These are all plants which produce enormous numbers of seed vessels, which one is aware should be picked off. They gave a brilliant display which was short-lived, but which might have been considerably extended had more attention been given them.

Taking the season all through, it has been really successful, and I feel convinced that the artificial supplying of water would not have greatly enhanced the effect, certainly not commensurate with the labour involved. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

HARDY FLOWER BORDER.

STOKESIA CYANEA.

Stokesia cyanea, a practically hardy perennial belonging to the Natural Order Compositae, was named in honour of Dr. Jonathan Stokes, and was introduced from Carolina in 1766. The long duration of its magnificent, fringed flowers should obtain for it a place in both garden and greenhouse.

The flowers, blue in colour, are from two to four inches across, and are borne terminally to the height of up to two feet on downy stems. The involucre is sub-globose, the outer scales being lengthened into a leafy, toothed appendage, while the inner ones are lanceolate and entire. The ray florets are narrowly five-cleft, and the pappus is of one row of membranous scales. The leaves are alternate, smooth, lance-shaped, and either entire or toothed at the base, the lower leaves being petiolate and the upper amplexicaule.

Grown as an outdoor plant, this beautiful perennial requires a warm, sunny position in which it will commence to flower in July and continue to give a very pleasing display until well into September. In very cold districts it needs winter protection.

Propagation may be effected by seeds or by division in the spring. *Reginald E. Moore, University Botanic Garden, Cambridge.*

CEPHALARIA TATARICA.

There is always room in a garden of any size for tall and effective plants of distinct appearance, and Cephalaria tatarica, a member of the Natural Order Dipsaceae, and allied to the Scabious, is one which might be more largely employed. I have seen it named Scabiosa gigantea, but the above title is the recognised one for this effective plant.

There are several members of the genus, but the only place where I have seen what might be called a representative collection of the Cephalarias was in the Manchester Botanic Garden, many, many years ago. There was a bed containing nearly a dozen species or varieties, all with pale yellow or deep cream-coloured blooms. I went carefully through them and came to the conclusion that one of the best was sufficient for any garden, and this was C. tatarica. The late Mr. Bruce Findlay, who was then Curator, very kindly gave me a plant of this species, and I have never been without it since.

A big plant now occupies a good position in a broad border just in front of a Thorn hedge and every summer and autumn it shows to great advantage, its Scabious-like, deep cream flowers, which look one boldly in the face, showing well on their long stems, six feet high, against the dark green of the hedge. The foliage is of a pleasing green, and like the flower, resembles in general form that of such Scabiosas as S. caucasica, but much larger. Many may consider C. tatarica coarse, but, when seen at the back of a border or in the wild garden it is far from being a plant to be despised. It soon makes large plants suitable for division, and may also be raised from seeds. *S. Arnott.*

BOG AND WATER GARDEN.

MIMULUS RINGENS.

This species is the only one of its genus in general cultivation whose flowers depart from the standard reds, yellows, and allied colours. Although often described as blue, its blooms are a bluish-lavender, or violet, but none the less they strike an uncommon note by the waterside throughout the later summer, and their hue blends remarkably well with almost any of the yellows. M. ringens is a hardy North American species and one that is not difficult to accommodate.

It does not even ask such wet conditions as do most of its tribe, being content with any cool, free soil that is on the moist side during the growing season. It will prosper in sun or shade, its colour always looking better in the latter, and the rigid stems stand well erect under almost any conditions. These stems, which rise to a couple of feet, or more, are square and furnished with narrow, oblong, pointed leaves of a rich green. The flowers are of the usual Mimulus shape, over one inch across, and they are borne in succession from July to autumn. The tough, rhizomatous roots afford a ready means of increase by division. M. ringens was introduced so long ago as 1759. It is, nevertheless, quite uncommon in gardens, more so than its distinctive merits deserve.

DARLINGTONIA CALIFORNICA.

That this plant should have come through last winter in the open ground and without any protection is one of the surprises of that season of evil memory. On two occasions the thermometer (on the ground) touched zero, yet Darlingtonia californica suffered no injury beyond the tops of its leaves which were browned or shrivelled. This interesting Pitcher-plant makes leaves of about a foot in length, but I believe it grows taller in some soils. These leaves may be described as horn-like, hollow cylinders of a leathery, glossy-green, terminating in a rounded, cowl-like head which is often tinted with purple. Beneath this rather awesome-looking hood is the mouth of the "pitcher," and this is rendered still more ominous in aspect by the possession of two flapping ribbons of purple which hang like the tusks of a walrus from the monster's lips. The flowers are a deep blood-red and they are suspended in a canopy of green sepals at the tip of a stalk nearly two feet tall. I opened some of the old "pitchers" of this plant and found they contained an enormous number of insects.

Dr. Hill, of Kew, was kind enough to have one or two of the Darlingtonia's last autumn "catch" sorted out, and an entomologist of the Natural History Museum, South Kensington, who carried out the gruesome task, tells me that the remains of the gourmand's banquet consisted of a large number of wasps, Vespa rufa and V. vulgaris, and besides a quantity of flies, including Syrphus balteatus, blue-bottles, and others, there were remains of earwigs, caddis-flies, moths, ants and other small game. Oddly enough, there were living fly maggots feeding on the debris of their departed parents. Since each "pitcher" would contain several hundreds of insects, all probably trapped during the last weeks of autumn, a plant with twenty or thirty of these lethal chambers must account for a vast number in the course of a season.

For a few years I had D. californica close to the water in a medium, but, of course, wet loam. There it lived but did not flower. It was then moved to slightly higher ground and given better drainage, consisting of stones and rotted vegetable refuse. This had the effect of causing it to flower the first season, and it has done so each spring ever since. D. californica is, if one can apply the adjective to such an ogre, a prettier and more interesting plant than the hardy Sarracenia purpurea, which is growing under similar conditions. *A. T. Johnson, North Wales.*

ALPINE GARDEN.

VERONICA LYALLII.

In the course of 1928, a good friend sent me cuttings of Veronica Lyallii, and these proved to be very easy to strike in sand in a frame, kept close for a week or two. The resulting plants have grown well and withstood the trials of the past winter, and have been flowering freely for a couple of months or more. Acting upon the maxim "never to put all your eggs into one basket," one good plant was placed on the top of a low, double wall flanking a flight of steps, where it has as a companion Pentstemon Davidsonii and other subjects. Several others were planted near the top of a high, rock garden bank facing north-west, and others in a south border. Not one plant perished, and all have been flowering freely.

V. Lyallii is a very neat little shrubby Veronica about six inches high, and has a plentiful supply of charming white flowers with a veining of pink. Farrer states that V. Lyallii is a smaller and more prostrate version of V. Catarractae, but it is very distinct from the form of V. Catarractae called diffusa, which I grow here. V. Lyallii is not so free-flowering, but is worth growing all the same, and forms a nice, showy bush with neat, toothed leaves. It is about six inches high.

V. Lyallii is stated to be very variable According to Farrer, V. Lyallii of the *Botanical Magazine*, t. 64,456, is a more erect grower with bigger flowers and larger, egg-shaped and pointed foliage.

SILENE QUADRIFIDA.

Although a plant which is far from rare in the limestone districts of the Alps, Silene quadrifida is not so common in gardens as one might expect. Sometimes one finds that S. alpestris is substituted for it in nurseries, while the true plant is also known as S. quadridenta, which the late Reginald Farrer appears to have considered synonymous. S. quadrifida is a neater plant than S. alpestris, although I should not like to hazard a statement that it is one which should be grown in preference to that good Catchfly. I always consider the latter one of our best plants for the rock garden.

Yet S. quadrifida is a charming little species, whose nearest rival in beauty is the lovely S. pusilla. S. quadrifida naturally frequents cool, shaded places in the limestone rocks and pathsides. In the rock garden it ought to have cool, shaded nooks or crevices, with the addition of some lime to the soil of loam and leaf-soil, which it seems to love. There, when established, it is charming with its thread-like growths, furnished with narrow, green, glossy leaves and bedecked with delicate stems carrying throughout the summer lovely gem-like, pure white flowers, each petal having its margin decorated with four little teeth. There is a slightly larger form of this with rose-coloured flowers, but this is very rare, and is one which I have not the good fortune to possess. According to Farrer, this is named S. q. var. pudibunda but I think it may be synonymous with S. q. var. rubicunda.

Given a cool, moist spot, there is little difficulty in growing S. quadrifida, even in lime-free soil. It is propagated by cuttings, seeds, or division. *S. A.*

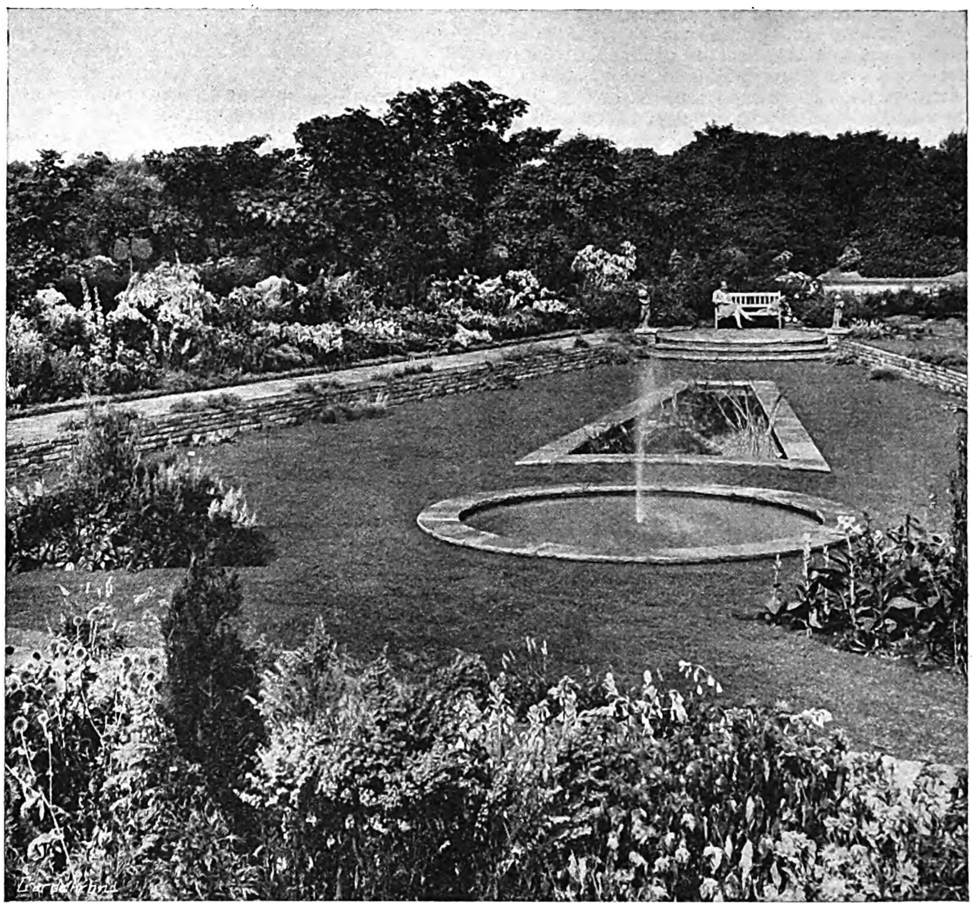


FIG. 99.—SOUTHPORT SHOW: MESSRS. KENT AND BRYDON'S FORMAL GARDEN.

(see p. 194).

DAPHNE BLAGAYANA.

One of the most entrancing dwarf rock garden shrubs which flower in early spring must assuredly be Daphne Blagayana, a species which is grown by (or is familiar to) so many professional and amateur gardeners, that a description here is hardly necessary. D. Blagayana owes its popularity to the possession of several distinctive qualities. It is both beautiful and fragrant in bloom; it is naturally hardy in a suitable situation, and until a few years ago it was considered a difficult subject to grow successfully, a fact which would be sufficient to secure the interest of any enthusiastic gardener.

Although rather exacting as regards position, soil, drainage, etc., this Daphne may become almost luxuriant when given conditions which suit it, and once in blossom the plant well merits the anticipation involved in waiting and watching. Even were the terminal heads of waxy, cream-coloured flowers, set against the background of dark green, leathery leaves, not attractive in appearance, their delightful fragrance—a fragrance peculiar to most Daphnes—is sufficient reward for the trials and failures which so frequently attend the cultivation of this species before success is attained.

On January 8, 1926, I noted that the plants of which I then had charge in Sussex had been in bud for several weeks, and were on that date "showing colour." The specimens referred to were planted on a shelf facing south-east and half-way down a cluster of large sandstone rocks. The ledge was about a yard in length and some eighteen inches wide. Although partly shaded by shrubs, it received a portion of the day's sun during spring and summer, a large specimen of Rhododendron obtusum var. amoenum protecting the Daphne until the heat of the day was spent. The compost was sandy peat, and it was found necessary to top-dress the plants every year. This annual top-dressing was important owing to a certain amount of soil being washed off the ledge, exposing the roots, which is usually fatal to D. Blagayana. Another very necessary procedure was to supply the plants with lumps of sandstone, which were laid on the soil or added with the top-dressing. The removal of these pieces of stone caused disastrous results; apart from retaining the soil in position, they evidently absorbed moisture, helping to maintain a cool root-run, and, conversely, encouraged free drainage by keeping the compost open. It may be noted that the flower buds of D. Blagayana are slow in opening, for the above plants were not in full bloom until the first week in March.

The success which attended the culture of D. Blagayana in Sussex led to somewhat similar treatment, but not on a rock shelf and with the aspect reversed, in a garden on the Cheshire-

Derbyshire border. A small specimen was planted some three years ago in a sheltered position at the base of a boulder facing north, and close to a plant of Philesia buxifolia. The compost is sandy peat and stones, and top-dressings of the same material have been added periodically. The plant has increased by running along underground (or on the surface unless top-dressed), and throwing up young growths some distance from the original specimen. It flowered freely in early April, being a little late owing to the season and aspect. Except in very favoured districts it is desirable to give a position facing north, if sheltered, in order to ensure that the flower-buds do not open until risk of frost-damage is at a minimum.

According to the late Reginald Farrer, D. Blagayana is a plant which is typical of the eastern alpine screes. He recommended a compost of stones, loam, peat and sand, but it may be argued that the addition of loam is not essential. Many growers succeed with the plant, and yet use little or no loam in the actual compost. Others add leaf-mould; this is admissible in moderation because of its chemical content and moisture-retaining properties, but the species appears to be unconcerned whether it has leaf-mould or not. It would appear that the chief essentials are a moist, yet well-drained, cool rooting-medium with plenty of large stones, annual top-dressings which will cover the leafless lower parts of the running stems, and light shade from the hottest sunshine. The writer has not found D. Blagayana to be intolerant of small quantities of lime, but it grows equally well in a lime-free compost.

Farrer waxed eloquent over the stony treatment of this species. While his advice to throw stones at the plant whenever one passed it, need not be taken literally, experience has proved the element of truth behind the remark. *L. B. C.*

SEDUM PILOSUM.

The hot, dry weather of the past spring and early summer has been very trying to plants in rock gardens, even where sprinklers and the hose have been employed. Had the prolonged frosts been accompanied by heavy snowfalls, and succeeded by warm, sunny conditions with fairly abundant precipitation at night, the rock gardener would have been overjoyed. A drought in spring is almost as serious a matter as excessive atmospheric humidity in winter; it would be equally as serious but for the fact that a drought can be remedied, although it may entail much labour and expense at a time when other parts of the garden require attention.

However, there are some plants which have thoroughly enjoyed the dry season, and probably none more so than the Sedums and Sempervivums. Of these, Sedum pilosum has been especially glorious, appearing to revel in the most sun-baked positions on the rock garden. In a recent number of this journal (*Gard. Chron.*, June 15, p. 441), Mr. J. W. Besant accorded this species a few words of well-merited praise.

Unfortunately, S. pilosum is a biennial. In its first year it forms small, tight, incurved rosettes of downy, apple-green leaves. These rosettes will produce offsets which may lead to premature hopes of rapid and perennial growth; but this is no true criterion, for the plant starts with the precociousness of a weed and then abruptly ends its existence after flowering. In May and June of the second year the rosettes are prolonged into short, stumpy, fat flowering stalks, one inch to three inches in length, closely set with hairy, succulent, linear-spathalate leaves, and producing several crowded apical branches. These little branches then erupt into flower in such profusion that the plants resemble squat clubs of clear, sparkling rose-pink, the petals being of waxy texture and thus reflecting what would otherwise be a softer tone. The plant is astonishingly like some miniature Crassula, but there are several conclusive botanical differences. To quote the late Reginald Farrer, S. pilosum, when in flower, is "much more suggestive of a Kalanchoe, from Fairyland, than anything else we know in this unrefined family."

This charming species hails from western Asia Minor, occurring in Armenia and the Caucasus at an altitude of 4,000 feet to 5,000 feet. It was named by Marschall von Bieberstein in 1808, but has been grown in gardens under the invalid name of S. Regelii. For one hundred years after it had received botanical recognition S. pilosum remained unknown as a garden plant in Britain. In 1910, Regel and Kesselring distributed seeds from Leningrad. A photograph appeared in *Gard. Chron.*, 1911, Vol. I, Fig. 160, on the occasion when it was shown at the Temple Show by three well-known nursery firms, one of which, the Burton Hardy Plant Company, supplied the plant which, was figured in the *Botanical Magazine* (t. 8,503).

In the article which accompanied the photograph in this journal, it was remarked that "Pink is such a rare colour in Sedums that any addition to the number with flowers of this colour is very welcome. Two of the smaller-growing species with similar coloured flowers are S. pulchellum and S. Sempervivum." Lest this statement be taken literally, one may add that the biennial S. Sempervivum (S. sempervivoides) is scarlet in colour, and the present writer is under the impression that it is a more lax and slightly larger plant; while the true S. pulchellum has rosy-purple flowers, and is a perennial species from the United States. S. sempervivoides is native to very much the same geographical area as S. pilosum, and the differences between the two species are so slight that it would appear legitimate to argue that the subject of this note is simply a form of S. sempervivoides, with S. indicum forming the Himalayan link between the Western and Eastern sections of the group sempervivoides of Dr. Lloyd Praeger. As Dr. Praeger points out in his Monograph, S. indicum is a variable plant, but always biennial and showing a closer affinity to the Asia Minor section than to the Chinese representatives of the group. The writer has not seen this species (S. indicum) as a garden plant, and the descriptions do not indicate any particular attraction for such a purpose. It does not appear in the Kew *Hand-list of Rock Garden Plants*; neither does Farrer record it in his *English Rock Garden*.

To return to the subject of this note. S. pilosum offers little difficulty in the garden. It loves a hot, fairly dry, stony soil, with a southern exposure, and may be planted (or perhaps sown) in broad, sweeping drifts, in clustered colonies, or dotted here and there on the rock garden. The latter method probably supplies the most natural effect, where it can make spots and splashes of pink on some stony slope; it may even be grown in clefts in the rockwork, and will flower with equal precocity in such situations. Seeds are produced freely and germinate readily, but the writer has not yet tried sowing *in situ*, since the plant is so useful for sowing under glass and then dibbling into odd corners or bare spaces as required.

Two rosettes of S. pilosum were obtained in 1927. They flowered the first year, being then in their second season of growth. From these two rosettes seeds were saved and sown in August (1927). At least a thousand seedlings appeared and about two hundred were planted out at the end of March, 1928. The soil was ordinary strong loam on top of a bank facing south, and the plants were dotted about in bays and between stones. For some time the rosettes failed to make headway. The spring was cold and dry, and these conditions extended into early summer. When the rain came the rosettes increased, often producing three (rarely one or two) rosettes from each parent, but they did not flower. A few of the rosettes were slightly damaged by wet, but otherwise the plant appears to be quite hardy. The chief difficulty is that the rosettes are pulled out of the soil by birds(?). In May and June of this year (1929) the plants flowered profusely—*i.e.*, about one year and nine months from sowing. Incidentally, rosettes of S. sempervivoides, purchased in the spring of 1927, and planted out in a similar position to that afforded S. pilosum, did not flower until August, 1928.

There is yet another way of growing S. pilosum. For the alpine house it is a thing of remarkable luxuriance and beauty, and may be recommended as a most decorative room plant during the few weeks it is in flower. When grown in pots the plant loses its dwarf, compact habit, and on producing its flower-stems the latter bear their leaves far apart. It becomes a great, lax succulent of magnificent proportions, with larger and more loosely-branched flowering stems—altogether a different plant. The individual flowers also are larger, being almost half-an-inch across, whereas in the open ground they rarely exceed a quarter-of-an-inch; they are, however, paler in tone than the bright rose of outdoor specimens (although on the rock garden the colour fades with age).

Some twelve months ago several rosettes were pricked out into a six-inch pot of soil but slightly richer than that accorded plants outside. By May of this year the plants had swollen to enormous proportions. Weighed down by the immense flower-heads, the whole mass flowed over the side of the receptacle, almost hiding the pot from view; the total spread was fully fifteen inches. This outrageous specimen of S. pilosum remained in flower for three or four weeks before going pale and sickly and dying off. The excessive length of stem and looseness of head were probably due to growing the plant on the staging, well away from the glass. It is, perhaps, worth noting, that pieces falling from this plant on to the greenhouse stage immediately took root and flourished in the gravel. As some of the smaller rosettes (off-shoots from the main plant) do not flower in the year in which they are made, it is reasonable to suppose that such portions which have separated from the parent plant and produced roots of their own, will flower in the year following. This is not a perennial mode of life, since the individual rosettes have fulfilled their allotted span of life by flowering and dying in the second year of their existence. This is what happened to the majority of the subsidiary rosettes formed in the summer of 1928, the untoward season probably accounting for the unusual behaviour of the parents. *C.*

BULB GARDEN.

THE HARDINESS OF GLADIOLUS BYZANTINUS.

I have known Gladiolus byzantinus as a hardy perennial which might be left alone in the border for many years without suffering from the weather, and have grown it myself for over forty years in my own gardens. Until now I have always considered that it would be unscathed during the hardest winter we have in this climate. To my surprise and disappointment this Gladiolus succumbed to the trials of last winter, and the numerous plants I had all perished. I should be glad to hear if any other reader has had a similar experience. *S. Arnott, Maxwelltown, Dumfries.*

LEUCOJUM AUTUMNALE.

Everyone knows and admires the Spring Snowflake, Leucojum vernum, but the Autumn Snowflake, Leucojum autumnale, is not so frequently met with. It is undoubtedly a perfect little gem, attaining a height of five or six inches, and producing grass-like leaves and charming white flowers tinged with red and borne on chocolate-brown stems. It is a plant of dainty appearance and is eminently suited for a good position in the rock garden; pot cultivation is also successful. The bulbs should be planted in July in a deep, light, sandy medium, a depth of from one to two inches being sufficient.

The dainty flowers are produced at the present time—during August and September. *T. H. E.*

TREES AND SHRUBS.

CRATAEGUS TANACETIFOLIA.

Belonging to a group of eastern Thorns, (of which C. orientalis, C. sinaica, etc., are also members), C. tanacetifolia was cultivated first in 1789, being introduced from Asia Minor and Syria.

It forms a fine, ancient-looking tree about thirty feet high; with long, gnarled, crooked branches, thickly set with multitudes of small twigs—almost converting the tree into a giant Witch's Broom—on the tips of which the sweetly-scented flowers are borne freely in clusters of generally seven. They are white, or nearly so, but the stamens have scarlet anthers, so giving the blooms—I had nearly written the tree, for it is generally almost covered with flowers—a distinct pinkish tinge.

The down on both surfaces gives a pleasing shade of grey-green to the leaves, which are divided into narrow lobes by up to seven, deep, parallel cuts, slightly toothed, and glandular towards the apex of each lobe. They are nearly as broad as their length—one-and-a-half-inch—and generally obovate.

CRATAEGUS DUROBRIVENSIS AND C. PUNCTATA.

A shrub of resplendent beauty, C. durobrivensis is glorious alike in flower and fruits; the large fruits are borne in big, drooping clusters in great profusion to the tops of the angular growths, fifteen feet or more in height (armed with long, terrible thorns), and are retained throughout the winter. The leaves are also worthy of note, being of rich green all the season, until disappearing in a flare of gold during October. They are broader than those of C. Carrierei, are lobed on each side, and serrate towards the apex. This Thorn has been in cultivation since 1901, and was first found growing near Rochester on the southern shore of Lake Ontario, U.S.A.

Crataegus punctata is another fine Thorn, whose pomes do not remain for long on the tree, but cover the ground to such an extent that it is impossible to walk under the tree after they have fallen without treading on several of the crimson-brown, practically globose, spotted fruits. The white flowers are borne in large corymbs, and the leaves, which are serrate and broadly ovate, narrowing towards the base and abruptly so to the apex, are downy beneath, and gently lobed on the young, sappy growths.

The habit of the tree is good, for with its almost horizontal branches it forms a grand head. C. punctata was introduced to cultivation in 1746, and is a native of Quebec, Ontario and Georgia, and to the west in Iowa. *G. S. T.*

DESFONTAINEA SPINOSA.

Desfontainea spinosa is a fairly common shrub in the west of Scotland, and the experience of most gardeners along the western littoral will scarcely coincide with those of your correspondent, *B. O. M.* (*Gard. Chron.*, p. 109), who mentions that a specimen six or seven years old may not exceed a foot in height. In regard to flowering, I have flowered it the second season after rooting the cuttings.

Cuttings of the lateral shoots, a few inches long, taken with a heel of the older wood, root readily if taken about the present time and inserted in light, porous soil, over a slight bottom-heat, keeping the cuttings close, moist and shaded.

Apart from its decorative value in the shrub border, D. spinosa is a good rock garden subject, as witness the spreading mass in the Edinburgh Botanic Garden, where it thrives and flowers profusely. In addition to the type there is a variety, Hookeriana by name, with flowers longer, and clearer in tone. *Jonathan Fiona.*

THE GENUS PRIMULA.

(*Continued from p.* 184.)

PUSILLA (Wall). Elfin P.
(Bella).

A minute, tufted, deciduous species with dense rosettes of spathulate or broadly lance-shaped, blunt leaves from half-an-inch to one inch long; margins pinnatifidly toothed with sharp, recurved teeth; upper surface sparsely covered with short, stiff hairs, underside densely covered with whitish down. Flower stem two to three inches tall, very slender, bearing a head of one to four nearly stemless, purple or violet flowers. Corolla a quarter- to three-eighths-of-an-inch across, with spreading, oblong, or broadly heart-shaped lobes; tube funnel-shaped, hardly exceeding the calyx, with a densely woolly throat. Introduced in 1888. *Bot. Mag.*, t. 7,079.

Grows in damp, stony, alpine pastures, in the central and eastern Himalayas, from 13,000 to 16,000 feet above sea-level.

Culture: Grow it in gritty, fibrous loam and peat, in a damp, half-shady spot, with protection from damp in winter.

PYCNOLOBA (Burr. et Franch.). Wine-red P.
(Pycnoloba).

This remarkable, deciduous perennial species possesses an exceptionally long, yellowish-green calyx and comparatively small blossoms. The rich green leaves, in tufts, have broadly heart-shaped or oval-heart-shaped, somewhat blunt blades so much as six inches in diameter, borne on hairy stalks two to six inches long; margins cut into unequal lobes which are furnished with sharp teeth; both surfaces clothed with scattered white hairs. Flower stem four to twelve inches tall, stout, hairy, bearing an umbel of about a dozen claret-red blossoms. Corolla about half-an-inch across, with erect, egg-shaped, notched lobes; tube cylindrical, scarcely as long as the calyx. Introduced in 1906. *Bot Mag.*, t. 8,612.

Grows in cool, damp, shady places near Tatsienlu, in Szechuan, western China.

Culture: As for P. mollis.

PYGMAEORUM (Balf. f.). Pigmy Stemless P.
(Farinosae).

A minute perennial species with rosettes of thick, fleshy, oblong-oval, blunt leaves carried horizontally on membranously-winged, strap-shaped stalks, sheathing the short root-stock at the base, in all from half- to three-quarters-of-an-inch long; margins entire, non-cartilaginous; both surfaces more or less smooth. Flower stem about a quarter-of-an-inch tall, smooth, immersed in the foliage, bearing an umbel of about three fragrant, mauve-coloured blossoms with a tiny yellow eye. Corolla about three-eighths-of-an-inch across, flat, with wedge shaped, deeply bifid lobes; tube cylindrical, about a quarter-of-an-inch long, with an undulate, toothed ring in the mouth. Flowers from April to July.

Grows in damp or boggy places and also in comparatively dry, sandy soil, in short turf, near Kambajany and in the region of Gyantse, in Tibet, at 13,500 to 15,500 feet above sea-level.

Culture: It should be grown in good fibrous loam, sand and peat in a damp, open situation in the rock garden, or on the edge of the bog garden, but kept comparatively dry in winter.

PYROLAEFOLIA (Lévl.). Pyrola-leaved P.
(Petiolaris-Chartacea).

A little-known Chinese perennial species reaching a height of about seven inches, with smooth, nearly circular leaves, heart-shaped at the base, borne on slender, non-winged stalks longer than the blades; the margins are furnished with somewhat remote, blunt or at times, sharp teeth. Flower stems longer or shorter than the leaves, slightly downy upwards, bearing an umbel of one to twelve blue or violet blossoms. Corolla with heart-shaped, toothed, dotted lobes; tube shorter than the calyx. Flowers in April and May. Not in cultivation.

Grows in shady places on wooded hills at Chan Hien and Ou Kia, in Yunnan, at 2,500 to 3,000 feet above sea-level.

Culture: Fibrous loam and Oak or Beech leaf-soil, in a damp, cool, shady spot, with protection from frost in winter are the conditions indicated.

RADICATA (Balf. f.). Many-rooted P.
(Farinosae).

A very distinct perennial from the Himalayas, with a tuft of leathery leaves about three-quarters-of-an-inch long, with elliptic or oblong blades, rounded at the tip, tapering to a stalk, broadly edged with membrane; margins furnished with remote, coarse, hooked teeth; both surfaces pitted with glands, upper surface sparsely, underside densely coated with white meal. Flower stem obsolete; flowers four to five in a sessile umbel immersed in the foliage. Corolla about half-an-inch across, bright rose colour, with thick, nearly square, notched or deeply cleft lobes; tube narrowly cylindrical below, dilated upwards and constricted at the mouth, where there is a deeply coloured ring; throat more or less downy.

Grows in damp, rocky soil at Chitral, in the north-western Himalayas.

Culture: As for P. rosea, of which it is, according to Professor Wright Smith's grouping, a sub-species.

REDOLENS (Balf. f.). Fragrant P.
(Bullatae).

A very beautiful, sub-shrubby, more or less evergreen, non-mealy species with a much-branched, woody rootstock, clothed with the remains of previous seasons' foliage. The rich green leaves, in dense rosettes, have oblong, blunt blades, wedge-shaped at the base, gradually tapering to a scarcely winged, channeled stalk, equalling the blade in length, in all three to five inches long; margins coarsely toothed; both surfaces clothed with white, glandular hairs, upper surface very deeply veined, underside pale, reticulate. Flower stem stout, four to five inches tall, densely coated with white, glandular hairs, and bearing an umbel of about a dozen white or pale violet, highly fragrant blossoms, on erect, pale green stalks, about three-quarters-of-an-inch long, covered with glandular down. Corolla flat, nearly one inch across, with overlapping, egg-shaped, bifid lobes coated on the underside with white meal; tube cylindrical, slightly dilated upwards. Introduced in 1911.

This species is a native of Yunnan, western China.

Culture: As for P. Forrestii.

REGINELLA (Balf. f.). Reginald's P.
(Farinosae).

A beautiful, dwarf species with tufts of few, somewhat thick leaves from three-quarters-to one-and-a-half inch long, with oblong-elliptic or nearly diamond-shaped, blunt blades, usually abruptly contracted into a winged stalk about twice the length of the blade, with a cylindrical sheath at its base; margins quite entire; both surfaces sparsely sprinkled with minute, capitate, glandular hairs. Flower stem about three-quarters-of-an-inch tall, erect, smooth, bearing an umbel of about half-a-dozen bright rose-coloured or bright mauve blossoms with a rich orange-coloured eye. Corolla about three-quarters-of-an-inch across, with egg-shaped or wedge-shaped lobes very deeply cut into two elliptic segments; tube cylindrical, with a ring in the throat. Flowers from May to July. Introduced in 1916.

Grows in open mountain pastures in company with other dwarf vegetation, in Kansu and western Szechuan, at from 11,000 to 15,000 feet above sea-level.

Culture: Plant it in good fibrous loam, grit and limestone chips in an open, sunny position, well supplied with water when in growth. *A. W. Darnell.*

(*To be continued*).

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXX.—Droughts and Doubts.

THREE problems now presented themselves to us: (i) the problem of food; (ii) the problem of water; and (iii) the problem of how to reach the Alps, which were some distance away. Over the first two we had little direct control, the third might be solved by perseverance. Luckily for us, it rained the very first night, and we caught some water off the tents; but during the next fortnight the drought was severe, and we were often very short; had it not been for the discovery of a muddy water-hole among the Bamboos, and later of a spring, about a mile from camp, we must have abandoned the ridge before the rains broke again. The water-hole was soon exhausted, and as the muddy water was upsetting us, perhaps this was as well. Then, on August 23, I had the good fortune to discover a small spring of clear water, from which we were able to draw a petrol-can full of water a day. Early in September, the rains recommenced, and all anxiety about water ceased.

The food problem was more serious. On August 18 we had about four days' rations—Rice and flour—left, but by reducing the ration still further, we could make this last a day or two longer. We drew in our belts and waited, but the rations dwindled day by day, and things looked very bad. On the 23rd, the last grain of Rice was finished—we ourselves had long since given up eating Rice, as we had our stores—and Luso had no food. A little flour still remained, but it was full of maggots and quite sour, so he would not touch it; we were not so particular, and had no religious or other scruples. But in spite of our stores, we were not really much better off than Luso. Rum and chocolate, biscuits and O.K. sauce, although excellent in themselves, are not a diet on which one can climb or move mountains; and when the last chuppatty and the last army ration were finished, we began to look foolish. We sent Hubble down to the valley to raid the villages, but he returned, like the dove to the ark, empty. Then we sent him down to get news of any coolies coming up with supplies; but again he returned without so much as an Olive branch. This was serious indeed, for usually when coolies are coming up the valley with loads, you hear of them days before they arrive. For three days Luso ate nothing at all—so he said—except four eggs which our friend the Meiliang Gam brought up; we insisted on him eating those. And then one day we returned to camp from a climb and found that four coolies had arrived with bags of flour and Rice; more were reported to be bringing up a fresh supply of stores. That night we went back on full rations and had a good dinner. One more day, and we should have had to return to the valley, although what we should have found to eat when we got there, goodness knows.

A short description of the forest in which our camp was situated, and where we remained for two months, may be given. The ridge ran due east to join the Dow-Delei divide, so that one flank faced north, the other south. The latter was covered with a dense growth of small trees, shrubs, bushes and climbing plants, including many Rhododendrons, Oaks, Acer, Castanopsis, Daphne papyracea (cannabina), Euonymus, Polygala arillata, Hydrangea, Buddleia, Enkianthus, Deutzia, Ilex, Salix, Rubus species, Gaultheria species, Berberis Wallichiana, a Yew closely resembling Taxus baccata, and Alnus nepalensis. Many of these are also found growing much bigger in the forest proper. Among climbing plants were species of Lonicera, Smilax, Akebia, Zanthoxylum, and Clematis montana. The Rhododendrons included R. Lindleyi, R. virgatum (the only place I saw that species), and the common 'Thomsonii,' 'Edgeworthii,' 'Maddeni' and 'Aureum' species, besides the small yellow-flowered epiphytic 'Campylogynum' with red fruits, and the gamboge-flowered 'Boothii.' On the rocky outcrops and grassy slopes which occurred here and there grew a pink-flowered Begonia with bunches of crimson fruits and rough-haired leaves, and a small Impatiens with vivid crimson flowers.

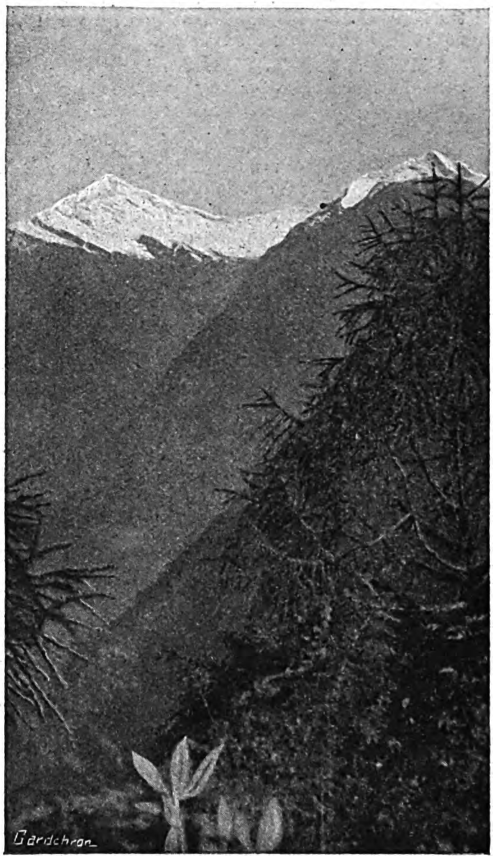

FIG. 100.—KASO: COLD AND ALOOF.
Showing the steepness of the forested slopes.

In the rain forest, on the sheltered face, were huge Oaks of many species, Acer pictum, a fine tree with dark green, seven-pointed leaves and masses of straw-yellow fruits streaked with purple, Magnolia rostrata, Betula, Pyrus species, Illicium, Tsuga, Schima, Gamblea ciliata, Rhododendron sino-grande, and several species of Cinnamomum and other Lauraceae.

In some places the ridge was deeply furrowed, and during the rains water collects in these hollows, which were always filled with a thick screen of Bamboo. The ground was very sticky, and it was here we found our water-hole. Wherever these Bamboo thickets occurred, there was certain to be found a large, spreading Magnolia, which by the end of September was covered with flower buds; but the flowers did not open before we left, at the end of October. I am informed by Mr. J. E. Dandy, to whom I showed some leaves, that this is M. Campbellii.

The undergrowth of the rain forest is mostly herbaceous, with a few small, scattered shrubs. Except where there are patches of Bamboo, it is quite easy to get through the forest, although, of course, directly we left the ridge we were on very steep slopes. Many of the herbaceous plants grow socially, *e.g.*, Ferns, species of Polygonum and Impatiens, and Strobilanthes. Other species, chiefly Monocotyledons, are more scattered, *e.g.*, the ground Orchids, Liliaceae, and Arisaemas. Among a few interesting herbaceous plants found in the rain forest were a Violet, which grew in colonies on the steeper slopes, and Androsace Henryi, both in fruit. Big climbing plants included Vitis, Actinidia, and two species of Schizandra, one with short, compact bunches of purple fruits, like small Grapes, the other with long, interrupted spikes of scarlet fruits; these last reached a length of six inches.

Soon after we had settled down in this camp it looked as though we were going to have further serious friction with the Mishmi-log. We had pitched our camp in a small clearing, and one day two hunters came up from the village on the south side of our ridge—Meiliang (Camp III) lay at the foot of the north face. Finding us squatting here, in their clearing, the Mishmis went straight off the deep end. They complained that we were trampling all over their Teeta garden, and spoiling hundreds of rupees worth of Teeta—Coptis Teeta being a small Ranunculaceous plant, the roots of which are prized as medicine. It grows wild in the forest, but clearings are made between 6,000 and 8,000 feet to promote its growth in accessible spots, and the plant is dug up in the winter and sold in the Saduja bazaar, the current price being nine rupees a *seer*, or about seven shillings a pound. The Mishmis put in a claim for large compensation, but as by this time we were thoroughly tired of Mishmi complaints, we told them to go to blazes. Mitonma, the village in question, at once declared war by non-co-operation, and refused to sell us bad eggs, or supply coolies, or help us in any way; but as we had already booked the Meiliang Gam, with heavy bribes and promises which he knew would be cashed on presentation, we felt secure on that flank. Also Chibaon, the next village down the valley, where we had stayed in April, had no quarrel with us, so that we could count at least on their neutrality, and the offended village was neatly sandwiched between these allies.

More serious was the complaint that we were spoiling the hunting rights. The Meiliangites did not hunt, so our being on the ridge was immaterial to them; also it was not their forest reserve, anyhow. But the Mitonmaites were very bitter about it, and tried to suborn our tame Gam with dark threats. But the Meiliangites, having been well paid by us, were unrepentent. True, they had been cowed by the threats of the truculent Tablekonites, whom they dared not disregard; but they could afford to listen to the vapourings of the Mitonmaites with contempt.

Where all this backstairs intrigue affected us, however, was that no one could be found to take us up the ridge to the alpine region, and although there was a track part of the way—frequently interrupted—it was very difficult to follow. Why, it may be asked, did we not simply follow the ridge, which, as we could see from our camp, joined the main divide? But it was just this following the ridge, smothered in the forest and unable to get a view in any direction, which was so difficult. As for the peak on which we had to march, it was, during the drought, often plainly visible from camp; but by the time we had cut a path to the divide, the rains had broken, and we did not see it again for five weeks.

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; Sept. 7, 1929.

However, from the very beginning we set to work to cut a path along the ridge; where the forest was open and the ridge undulating, we could follow the trail, or easily make one for ourselves. It was in the dense Rhododendron scrub, and on the steep slopes that, finding no trace of any path, we had laboriously to cut our way. Several times we got right off the ridge and found ourselves cutting a path along some flank spur. Nevertheless, by September 2, when the fine weather broke up, we had taped a path so far as the main divide.

Our worst troubles now seemed to be over. We were securely planted in our new camp, a long way from the Alps, it is true, but in a better position than at one time seemed possible; we had plenty of water, and enough food to last us until the middle of October. Success seemed assured. The real knock-out blow came later, and from an unexpected quarter.
F. Kingdon Ward.

PROBLEMS OF PLANT LIFE.[*]

VIII.—Plants and Drought.

Such a season as that through which we have recently passed is one of great anxiety to the farmer and gardener. The problem is to find plants which can flourish under conditions of drought, and during the present century large sums have been expended in various countries on investigating the means which Nature employs to meet the difficulty. For while it is a comparatively modern problem with us in the British Isles, Siberia, America or Australia, it is far from being a novel problem in the realm of Nature. If we can discover a few of her methods of procedure, therefore, the knowledge gained may presumably be of great service.

One very suggestive method of meeting the difficulty is of such great importance that we place it in the forefront, because it has practical and economic significance. It is well-known that many of our native plants, relying on an abundant supply of moisture, content themselves with surface roots. They never strike deep. This, in times of drought, proves their undoing. Nature says, in effect, that the plant which will survive a long period of drought must send her roots deep. It will probably come as a surprise to many readers to learn that if grain is sown in suitable soils Oats will send down their roots to a depth of four feet, while those of Wheat have been found to go deeper still, attaining a depth of five feet. This shows the importance of deep culture—" Because they had no deepness of earth they withered away."

It follows, in the first place, that those crops are the most likely to resist drought successfully which have penetrating roots and depth of soil. In this connection it is instructive to examine such native plants as are exposed to drought through the struggle for life. Ousted from the richer soil, they gain a livelihood in dry places, and are able to flourish by means of their tap-roots. Thus, if we pluck up weeds which flourish in dry places and in seasons of drought, we shall often find that they have at least one root which can penetrate the soil to a considerable depth. The practical gardener may be reminded that we have a capital illustration in the plants which are grown for Spinach. If we compare the ordinary form of Spinach, with its shallow roots, with Good King Henry (Chenopodium Bonus-Henricus), which many people find preferable, we shall see the difference. The latter is now often found as a weed outside old-time villages, and has a very deep root.

Take next the problem of sap. It used to be thought that the flow of sap was a very simple matter. As knowledge widens, however, we find that there are numberless problems to be solved in this connection. Most plants, as is well-known, are supplied with abundance of breathing pores or stomata. We will consider these important organs in my next paper. They vary immensely in size, number, shape, arrangement and position, and are thereby able to serve a variety of ends. Under the influence of sunlight they take in the carbon dioxide given off by the lungs of animals and men, filter out the oxygen and use up the carbon. They are also useful for purposes of transpiration.

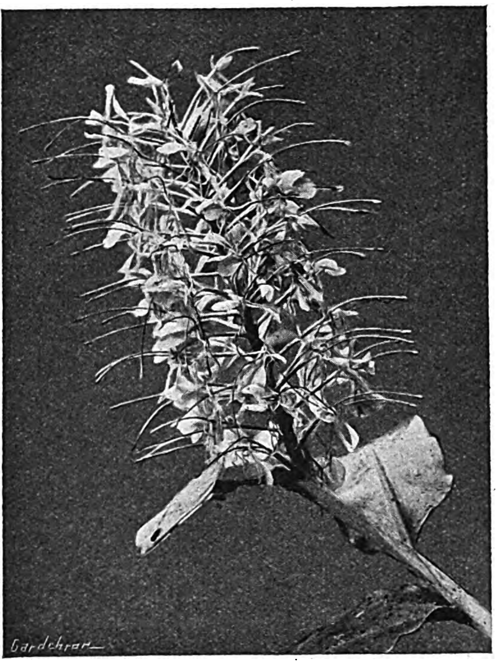

FIG. 101.—HEDYCHIUM SP. (K.W. 8,501).

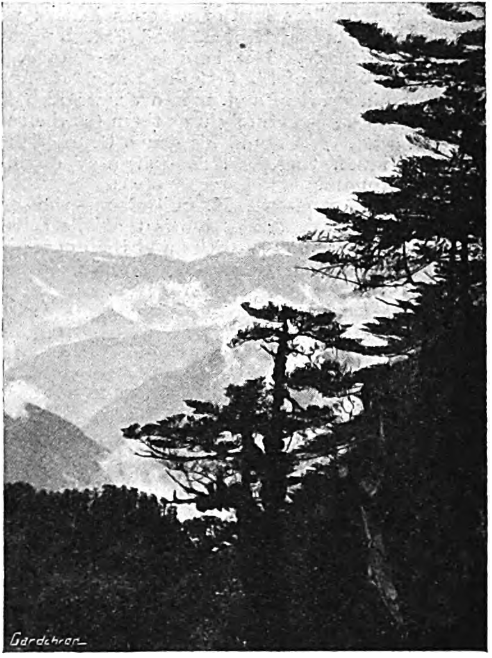

FIG. 102.—ABIES WEBBIANA AND THE VALLEY DEPTHS.

Now the moisture in the soil is drawn up through the combined action of root and leaf, the plant is rendered rigid, the salts held in solution in the water are distributed by a wonderful process of selection and, along with the carbon, converted into stem and leaf, flower and fruits, with all their various colours, shapes, perfumes, oils, essences and other qualities.

It follows that if one would understand the means by which Nature balances her accounts, special attention must be given to the processes of transpiration, with which I dealt in my sixth paper, and wilting, which was the subject of the fifth. Wilting serves the plant-grower in two ways. It helps to eke out diminished supplies, and it hangs out a flag of distress.

Wilting, however, is only one of the many processes brought into operation to check transpiration, and thus diminish the effects of drought. Everyone who has studied the plants which are normally found in this and other lands growing in dry places, or flourishing under drought conditions, knows that they are frequently found to be provided with a waxy coat, a garb of special hairs, and other ingenious devices for keeping the flow of moisture within due proportions. It follows that, if one wishes to grow plants which will not succumb to drought, choice should be made of those species which have been specially provided by nature with such devices as these. Some plants secure the end by developing a specially thick cuticle, others by reducing the number of stomata, or by placing them in unusual situations to check transpiration.

It is very instructive also to notice the ingenious plan of providing plants with natural tanks or reservoirs which can be filled in days of luxury and prosperity, to be drawn upon in seasons of adversity and need. The roots, bulbs, corms, tubers and other underground organs with which so many plants are provided are in many instances clearly designed to meet emergencies, such as follow a period of drought. Swollen stems, thick leaves, succulent fruits are other well-known devices familiar to every practical student of plant life.

Persons who have the care of lawns can hardly have failed in seasons of drought to observe how fresh and vigorous the Clover is when the grass has lost its freshness and bloom. This leads us to another of the many means which Nature employs to meet her needs. It has long been known that certain plants, by an ingenious means of subsidizing soil-bacteria, are able to obtain rich supplies of nitrogen and so flourish when other plants succumb. Taking advantage of this fact, growers in other lands have developed the cultivation of such plants in order to secure themselves against the losses which they might otherwise sustain.

It may not aid the gardener or farmer, perhaps, in any very practical way if he devotes attention to the life histories of Lichens, Mosses, Lycopods, Ferns and other related plants which are able to live and flourish in times of drought, but the student of plant life will pursue this line of investigation for the light which it throws upon the problems which Nature undertakes to solve. For, great as have been our advances during the present century, much still remains to be learned.

One might enquire, for example, what difference it makes to a plant whether its cell sap is watery or milky, thin or concentrated, free from, or largely impregnated with, various acid or alkaline, oily or aromatic ingredients. How far does the gum of the Acacia, the turpentine of the Pine, the tannin of the Oak, or the milk of the Spurge affect their powers of drought resistance? One might surmise that the thin sap would rise and transpire more rapidly than the thick, and that, as a consequence, plants provided with the latter would be the better adapted to resist drought. Experiments, however, show that the processes of transpiration are so complex that speculation unchecked by systematic observation or experiment may easily lead the speculator astray.

In practice, therefore, we must inevitably make Nature our mistress and guide. She does not, however, reveal her secrets to the careless and casual observer, but to those who are ready to sit at her feet and patiently learn her processes.

For the present it is possible for us to draw from experience one or two well-established conclusions in relation to the lines along which

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[*] Previous studies appeared in our issues of April 13 (p. 279), June 15 (p. 446), Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71), August 17 (p. 130) and September 7 (p. 187).

Nature solves the drought problem. We know the value of deep culture and of tap-roots. We have learned that she utilises bacteria for securing supplies of nitrogen and other plant foods, that she regulates the stomata to conserve moisture and prevent excessive transpiration. We have seen that she uses the camel's device for treasuring up stores of liquid in reservoirs underground, in the stem or in the fruit, and what has already been learned, while it reveals our ignorance, nevertheless points the way for further research; and each new discovery makes yet further progress possible. *Hilderic Friend.*

MESEMBRYANTHEMUM.

(*Continued from p.* 34.)

MITROPHYLLUM, Schwant.

Shrublets or rarely stemless perennials, of remarkable habit. Stems all with distinct internodes, or with internodes only developed on the flowering stems, the vegetative shoots then being without developed internodes, or in two species (of one of which the flower and fruit is unknown) apparently entirely stemless. Leaves opposite, two pairs only produced at each growth annually, and each pair different; the first pair free except at the very base, flat above, rounded or keeled on the back; the second pair united from a third part to nearly all of their length into a conical or rarely cylindrical body, minutely crystalline-papulose, especially at the tips. Flowers solitary or developing into lax cymes when in fruit, terminal, pedicillate, with or without bracts. Calyx sub-equally 5-lobed to its union with the ovary. Petals numerous, free, in 3 or 4 series, linear. Stamens numerous, erect, in a column. Stigmas 5–7, subulate. Ovary inferior, with 5–7 sutural ridges on the flat top, 5–7 celled; placentas on the outer wall. Capsule very shortly and broadly obconic, with 5–7 prominent ridges on the flat top and 5–7 valves and cells; expanding-keels usually diverging from the base, with incurved tips, sometimes sub-parallel, broad and flat, with the inner edge raised, with membranous margins; cells shallow, with or without membranous cell-wings. Seeds ovoid or Pear-shaped.—Schwantes in *Zeitschrift f. Sukkulentenkunde*, 1926, p. 181. Conophyllum, Schwantes, in the same volume, p. 321.

Species several, natives of Little Namaqualand. For the type of the genus see later.

The name is derived from the Greek, *mitra*, a mitre, and *phyllon*, a leaf, in allusion to the shape of the united pairs of leaves.

The plants comprising this genus are among the most remarkable of flowering plants, and very interesting on account of their vegetative peculiarity. When in a state of rest each growth or branch terminates in a conical or rarely cylindric, fleshy body. Within this cone, during the months of rest, a pair of leaves, free almost to the base, is being developed, quite invisibly, at the expense of the tissue of the cone, until finally the substance of the latter is all absorbed, except a thin skin that covers and conceals the leaves inside. When the growing period arrives, these leaves burst the skin, increase in size, and spread widely, and from between them arises another pair of leaves united for part or nearly the whole of their length into a cone or cylinder. This cone is sometimes supported upon an internode of stem and sometimes sessile between the spreading leaves, and when the dry season comes the latter wither and dry up, and the cone persists, to repeat the development above described.

This mode of growth is, of course, only a modification of that of the genus Cheiridopsis, to which Mitrophyllum seems to be in some way allied, for the genus comprises two groups, one in which the vegetative and flowering growths are both alike, are permanent and have distinct internodes, and another group in which the permanent vegetative part of the plant is practically stemless and sessile on the ground, without internodes, but produces tall flowering stems with distinct internodes, which die after fruiting. A vegetative growth of this latter group with its free leaves spreading close to the ground, and the cone of united leaves arising from between them, in habit is so very similar to Cheiridopsis peculiaris in the same condition of growth, that without seeing flowers and fruits most people would probably consider them to belong to the same genus.

This remarkable group is one of those I alluded to in *The Gardeners' Chronicle*, 1925, Vol. LXXVIII, p. 412, as being left under Mesembryanthemum when my key to the genera was constructed, because I had no fruits or adequate material by which to separate them. Schwantes, however, has rightly separated the group and founded the genus Mitrophyllum for its reception at the place above quoted, upon the following structural characters:—Flower solitary, terminal, bractless, sometimes breaking through the body of the cone, with shorter or longer pedicels. Calyx 4–5-lobed. Petals in several series, linear, white or pink. Stamens numerous, spreading. Stigmas 7, subulate, as long as or shorter than the stamens. Capsule 7-celled; cells with cell-covers; placentas parietal, without placental tubercles; expanding-keels diverging upwards, with moderately broad wings. Seeds unknown.

It is not stated from which species these characters were derived nor which is the type of the genus. But in the very same volume, p. 321, he divides Mitrophyllum into two genera, and states that M. mitratum is the type of that genus, which he there defines as follows:—"Pedicel with two short, thick bracteoles at the base. Petals and stamens numerous. Stigmas 5, filiform. Capsule 5-celled, without cell-covers; expanding-keels parallel, not touching one another, with small, marginal wings. Seeds Pear-shaped, slightly papulose."—Now, these characters, stated to be derived from M. mitratum, are so different from those of his original description (quoted above), that it is obvious that both sets of characters could not possibly have been made from the same species, and, therefore, M. mitratum cannot be the type of the genus as originally established. For it is those original characters that must be maintained for the genus, as it is not permissible and is against all rule and precedent to deliberately change the characters of a genus in this way, unless it can be demonstrated that a mistake has been made. But here is no mistake, for the characters of his first description do apply to certain species, and, moreover, we also find that Schwantes actually uses them (at the same place quoted) to found his genus Conophyllum, which must, therefore, rank as a synonym of Mitrophyllum.

With reference to M. mitratum, the only claim to generic distinction is that the cells of its fruit have no cell-wings and the expanding-keels are parallel instead of divergent, for there is no other difference. I regard this as merely a structural variation among species belonging to the same genus, because among the large number of fruits I have examined I find that although fruit-structure is fairly constant and reliable (in conjunction with vegetative characters) for distinguishing genera, yet here and there among species that unquestionably belong to the same genus variations occur in fruit-structure that must be disregarded from a generic point of view; such characters as the presence or absence of placental tubercles, presence or absence or rudimentary development of cell-wings, and the contiguity or separation and divergence of the expanding-keels, are all liable to variation occasionally. Therefore, I regard M. mitratum as not generically distinct from the others enumerated here, but it cannot be accepted as the type of the genus, as the structure of its fruit is stated to be different from that originally assigned to Mitrophyllum. I have only seen fruit of M. grande, which was attached to the plant and exactly conforms with the characters of the fruit as described originally by Schwantes, and as he has not mentioned which of the known species is the type from which the characters of his original description were made, I propose that M. grande be taken as the type of the genus. *N. E. Brown.*

(*To be continued.*)

NURSERY NOTES.

MESSRS. S. BALE AND SON.

Situated at Barnstaple, in the county of Devonshire, amid charming surroundings, the Westacott Nursery has traded under the name of Messrs. S. Bale and Son for a very long period and has been responsible for the supply of trees for afforestation and general planting throughout the western counties and in large quantities to the trade.

The magnificent specimens and woods of Coniferous subjects to be seen in this county, as, for instance, the good examples of Silver Spruce, Douglas Fir, Larch, Pine, etc., in the north Devon district, makes it particularly interesting to follow the methods adopted by nurserymen in the raising of these noble trees from seeds, and their subsequent treatment before they become available for the plantation.

It was formerly the practice to procure seedling plants from outside, and the writer's first experience as a lad in this nursery was the thick bedding of a consignment of young Conifers in rows about one foot apart, but since the war it has been found more economical to raise plants direct from seeds which are sown during spring in short, shallow drills a few inches apart, lightly covered with sifted soil and shaded until the young plants are capable of withstanding exposure. Great care and attention is given during the early stages of growth, and the seedlings are not disturbed for a period of two years, when they are carefully lifted and thickly bedded in rows for a further term of two years, at the expiration of which they are again transplanted, and the finest of the batch may be fit for disposal the following season. It will be readily seen, therefore, the time necessary for the production of young trees, and it is really surprising how they can be procured so cheaply from the nurserymen.

Many thousands of Cupressus macrocarpa are raised at Westacott annually, and the methods differ from the above-mentioned in that they are sown in pans, the seedlings placed in small pots and afforded cold frame treatment, and eventually moved on into larger pots and plunged in the open ground until large enough to be sent out.

There is generally a good demand for young Beech trees and enormous quantities are raised. These, together with Ash, Thorn, etc., are sown in broad drills, the seedlings being lifted and transplanted until of sufficient size for disposal. A good local trade is done in the supply of standard Apple trees, particularly such kinds as Bramley's Seedling, Annie Elizabeth, and many local types of Cider-making qualities.

Of shrubs grown, Escallonia macrantha, E. Ingramii and E. exoniensis, Griselinia littoralis, Fuchsia macrostemma var. Riccartonii and var. gracilis; Abelia rupestris, Cistuses, Cytisuses, Spartium junceum, Berberises, Veronica Andersonii vars. Olearia stellulata and O. macrodonta, Hypericums, etc., are all highly prized for planting in the west. A large area closely planted with Hydrangea hortensis—the soil is favourable to good colouring—is an unforgettable picture of great beauty. *H. G. King, Twickenham.*

FOREIGN CORRESPONDENCE.

CYPRIPEDIUM SPECIOSUM.

Hardy Cypripediums are always admired by plant-lovers, whether they are growing in gardens or in their natural habitats, for they add distinct character to the surroundings.

C. speciosum is one of the handsomest and one of the easiest species of Cypripedium to grow. It is found in woodland, where trees are not densely clad, or in open, sunny places growing here and there among Miscanthus sinensis, an ornamental perennial grass, at the bases of the mountains in middle and northern Japan. The habitats in which it grows abundantly are the dry places, where the soil is a sandy loam with a surface covering of a few inches of decayed leaves; it is not deep rooting. Generally it is found in higher altitudes than C. japonicum and C. debile—3,000 feet above the sea-level. The latter two, which prefer shady, moist places, are found mostly at 1,500 to 2,000 feet above the sea-level, but they are often found in lower altitudes. Ten or so years ago, I found C. debile in an old castle, which is only about one hundred feet above sea-level, and about a mile from the sea coast.

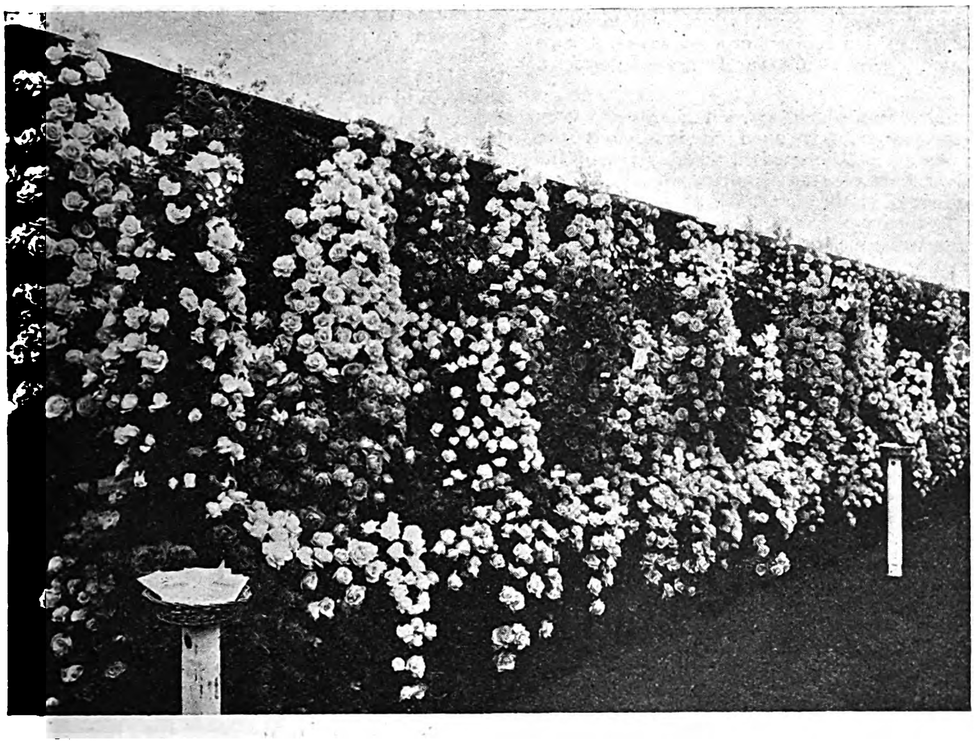

FIG. 103.—SOUTHPORT SHOW: GROUPS OF ROSES.
(see p. 192).

The pubescent stem of C. speciosum is about a foot high, clothed with four or five ovate, dark green leaves, and bearing a single flower, the sepals and petals of which are narrowly ovate, pointed towards the tips; the sub-globose lip is large; the colour is whitish or slightly tinted with pink, veined with dark crimson-purple.

It is best grown in a mixture of two-parts loam and one-part leaf-mould, in shade, which is, however, I think, not necessary in England. To have flowers every year, liberal manuring is decidedly necessary when flowering is finished. *K. Yashiroda, Japan.*

GRANT THORBURN.

I WAS interested in the account of Grant Thorburn which appeared in your issue of May 3. I have bills made out by Grant Thorburn and by his son. These are on plain paper, no printing, and in pounds, shillings and pence, which evidently were in common use here at that time. I also have several very interesting letters of Thorburn's in my collection of autographs of prominent horticulturists. These have considerable historical interest.

Thorburn's was the first seed store in New York, and he was a man of many unusual and interesting experiences. Thorburn's sons were interested in the business and carried it on after his retirement. Later, a grandson, J. M. Thorburn, became owner, and finally a Mr. Elphinstone, who married J. M. Thorburn's sister, was admitted as a partner, also a son, Grant, junior, the latter withdrawing a few years later. The business was then conducted under the name of J. M. Thorburn and Co.

F. W. Bruggerhof started with the establishment as a boy of all work in 1849, and was admitted as a partner by purchase when the store was located at 15, John Street, which I well remember, going there as a child with my father. Later, the store was moved to Cortlandt Street, and then to Barclay Street. Mr. Bruggerhof was in charge up to the time of his death, a few years ago. This store was known generally throughout the trade as the place to buy seeds that could not be found elsewhere in this country. After the senior Bruggerhof's death, it was conducted for a short period by his son, and after the son's death it was sold to inexperienced young men, who soon gave it up, selling what was left. There is practically nothing remaining but claims to the name.

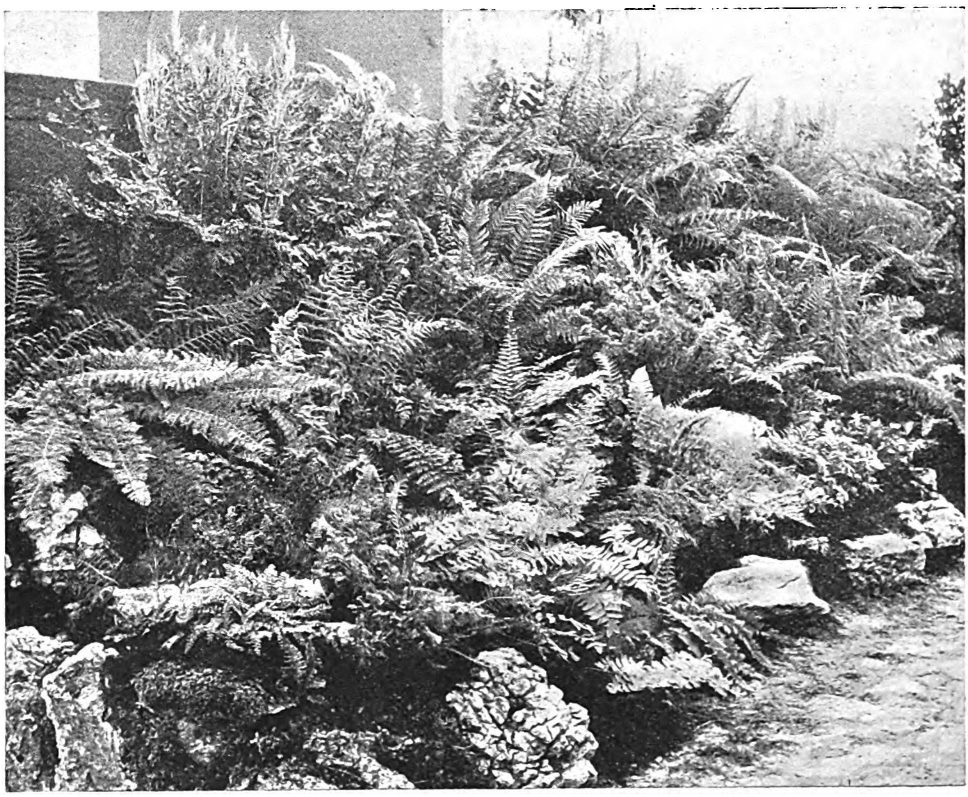

FIG. 104.—SOUTHPORT SHOW: GROUPS OF HARDY BRITISH FERNS.
(see p. 192).

I also have the following Thorburn books:—*The Planters' Guide,* by Sir Henry Stewart, Bart., first American, from the second London and Edinburgh edition, New York, 1832; published by G. Thorburn and Sons. *Laurie Todd,* by John Galt, edited by Grant Thorburn, printed and published by the editor, New York, 1847; autographed by Grant Thorburn, aged seventy-three; this book contains a manuscript by Thorburn: "The first night I slept in New York was the 17th of June, 1794," etc. *Fifty Years' Reminiscences of New York, or Flowers from the Garden of Laurie Todd,* by Grant Thorburn, New York, 1845. *Forty Years' Residence in America, or the Doctrine of a Particular Province Exemplified in the Life of Grant Thorburn, Seedsman, New York, Boston,* 1834; this volume contains the correspondence between Thomas Paine and William Carver, which, in quoting, some of our American writers have decidedly reversed the facts; another volume of the same contains the autograph, "Grant Thorburn, Sr, aged 82 years." *Life and Writing of Grant Thorburn, Prepared by Himself,* New York, 1852. *Laurie Todd's Notes on Virginia; with a Chapter on Puritans, Witches and Friends,* price 12½ cents, New York, 1848. I also have letters of another early British-American horticulturist, William Cobbet. I am now seeking a letter of Linnaeus, having missed an opportunity of purchasing one that was once offered. *E. C. Vick, Newark, N.J., U.S.A.*

ECHINOCYSTIS LOBATA.

ECHINOCYSTIS lobata is a rapid-growing, annual climber occurring plentifully in this locality. Bailey defines its habitat as New Brunswick and Ontario to Montana and Texas. It is most abundant on low, rich ground, especially along brook and river banks, where it sprawls over the ground or clambers over shrubs and stout herbage. The stems and foliage are pale green, each leaf being opposite a three- or four-branched tendril. The leaves are deeply and sharply five-lobed, and are wider than they are long.

The plant is almost glabrous. The staminate flowers, of a greenish-white hue, are borne in showy compound racemes often a foot to fifteen inches in length. One of these racemes rises from every leaf-axil. The fertile flowers are usually solitary, but sometimes occur in small clusters in the leaf-axils. Each is followed by a large, egg-shaped fruit which is at first fleshy but later becomes almost dry and bursts at the summit. The outer side of the fruit is clothed with long, weak prickles. The ovary is two-celled, with two flattish ovules in each compartment.

Echinocystis lobata is a showy subject when in bloom and finds favour as an arbour plant, its rapid growth and attractive appearance making it valuable for this purpose. A synonym is Micrampelis lobata, and the plant is popularly known as the Wild Balsam Apple or Wild Cucumber. *T. H. Everett, New York, U.S.A.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

(*Continued from p.* 190.)

WARWICKSHIRE.—The best crops this season are of small fruits; Raspberries, Gooseberries and Currants have been abundant, with a record crop of Black Currants. Cherries were also quite good. Strawberries were very unsatisfactory owing to the long drought and cold nights, many of the early flowers were spoilt by frost. Apples are well under the average, the best crops being of Worcester Pearmain and Lane's Prince Albert. Pears are not plentiful, and many varieties have failed to crop; this also applies to Plums. *H. F. Smale, Warwick Castle Gardens, Warwick.*

ENGLAND, S.

BERKSHIRE.—Early spring gave promise of a good fruit season, especially of Apples and Pears. Trees of both these fruits carried an enormous quantity of flowers; Pears, whose blossoms seemed very weak, set well, and are carrying good crops, except Doyenné du Comice, Beurré Diel and Santa Claus. Apples set very badly and only on a very few trees is there any quantity of fruits. The following are good, both in crop and quality:—Keswick Codlin, King of the Pippins, James Grieve and Langley Pippin. Cox's Orange Pippin trees are practically barren, likewise Ellison's Orange. Strawberries were the best crop here for years, The Duke being especially good. Cherries were excellent, and so were Gooseberries, Red and Black Currants and Raspberries. *Stanley R. Gammon, Farley Court Gardens, Farley Hill, Reading.*

—— Fruit crops here are average ones. Apples on standards are poor, except Newton Wonder; bush and espalier trained trees are carrying good crops as they escaped the cold winds. Two bush trees of Apple Bountiful have given crops annually for the past twenty years; this variety makes a splendid bush and the fruits keep well. Pears are a good crop of clean fruits and Strawberries were abundant. All bush fruits were good. Fruit trees in general are clean and making good growth. *A. B. Wadds, Englefield Gardens, Reading.*

—— Owing to the severe winter and the late spring frosts—when most of the fruits were in bloom—followed by the long drought, the fruit crops in general are far below the average. *Thomas Wilson, The Castle Gardens, Wallingford.*

—— The hardy fruit yields in this district are very irregular, especially of Apples and Pears. The wood was well-ripened last year, and the severe weather of late winter and early spring, which retarded the flowering period, gave rise to the promise of abundant crops. The sharp frosts registered at night during the spring, dispelled the expectation of an average yield throughout the various hardy fruit crops. Among the varieties of Apples, the Codlin group bears an average crop; the same applies to Lord Derby and Lane's Prince Albert, Wyken Pippin, Allington Pippin and other sorts, which are sometimes regarded as second-rate varieties in prolific cropping years, but are welcome when first-rate Apples, such as Blenheim Pippin, Bramley's Seedling and Cox's Orange Pippin are fruitless. Pears are variable; Louise Bonne of Jersey, Doyenné du Comice and Pitmaston Duchess are barren. Bush fruits fruited well, especially Black Currants. Strawberries were plentiful, but their season was shortened by the prevailing heat, although the plants did not appear distressed through lack of root moisture on our soil, which is Bagshot sand with outcrops of loam. *Frederick Gooch, Earlywood Gardens, Ascot.*

DORSETSHIRE.—The garden here is very scattered, some of it on high land, but the older portion of the garden, where most of the fruit has been planted, is situated in a valley, at the foot of chalk hills. We do not, as a rule, suffer badly from drought, but are very subject to severe winter and late spring frosts. Apples flowered well, but we have good crops of Beauty of Bath and Early Victoria only. Other varieties are very thin or barren. Pears are quite good and look well. Cherries were very good, but black fly has proved troublesome. Plums gave a really good show of blossom, but fan-trained trees on a north wall are the only trees carrying good crops. Many standards are barren. Peaches, both outdoors and under glass, are very satisfactory. Strawberries were an average crop, but the fruits were of excellent quality. Black Currants and Gooseberries bore heavy crops and look well. I was agreeably surprised with our Gooseberry crop. Last year, in spite of two sprayings with ammonium polysulphide, we suffered rather badly from mildew, so much so that I destroyed half the plantation. The remainder, on the principle that very little harm could be done, if no good, were sprayed thoroughly with tar-distillate, as late in the season as I dared. The bushes have not been sprayed with ammonium polysulphide this season, but they are free from mildew. Perhaps someone will tell me why this should be so. I should have mentioned that all the bushes were tipped thoroughly during early winter. Loganberries were cut almost to the ground here by the severe winter frosts. Lloyd George Raspberry was also badly cut, but the surviving canes of this variety are carrying a good crop. *Henry F. Maidment, N.D.H., Crichel Estate Gardens, Wimborne.*

—— In this district Apples are a very light crop, except a few early varieties. Cox's Orange Pippin did not flower, but this was not because the trees carried a heavy crop last year. Loganberries were killed back to about a yard from the ground, and Figs suffered severely from frost. Fruit trees generally are clean although red spider is very prevalent. The rainfall for the year up to the end of June was 7·53 inches, the lowest fall I have recorded, and about half the average.—*W. E. Axford, St. Giles Gardens, Salisbury.*

(*To be continued.*)

FRUIT GARDEN.

TWO GOOD OUTDOOR PEACHES.

THE list of varieties of Peach given by Mr. H. H. Cook on p. 124 (Vol. LXXXVI) is excellent and calls to mind two other sorts that have been and are doing well on a south wall outside. While in Worcestershire, Dr. Hogg did remarkably well; it is a finely-coloured Peach, ripening in August; the tree is hardy and a good grower. The flesh is firm, and sometimes has a red appearance and always a sweet flavour. It generally cropped well, and the fruits came a medium size—quite a desirable outdoor variety.

Duke of York does remarkably well here in Buckinghamshire. Last year, a large tree on a south wall ripened its fruits in July—at the same time as a tree of the same variety ripened its fruits in a cool house. Although the outdoor fruits were not so large in size, yet the crop was—and is this year—a heavy one, and the flavour quite good. On our gravelly soil growth is not as robust as one could wish. The tree needs plenty of feeding to balance its heavy cropping. It is well-coloured and of a good flavour, also very reliable. *G. H. Emmett, The Gardens, Taplow Court, Taplow, Bucks.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Linums in semi-shade.—In his note on Linum viscosum, on p. 151 of your issue for August 24, your contributor *North Wales* mentions that the plant has flowered under conditions of partial shade, and my experience with another of the Flaxes, namely Linum grandiflorum var. rubrum, leads me to think that the general rule of selecting a very sunny spot for Linums can be too strictly adhered to. From seeds sown early in May there is flowering outside my window a batch of Linum grandiflorum var. rubrum on which flowers have been produced in a seemingly uninterrupted sequence since the first week in July, and there seems the promise of a display for a week or two yet; this on a plot of ground on which the sun never shines before three o'clock in the afternoon. I have noticed batches of the same plants in hot, sunny situations this summer and it seems they were exhausted some three weeks ago. Furthermore, I have recollections of seeing, a year or two back, L. monogynum and L. narbonense flowering profusely on a shaded part of the rock garden at Kew. *W. Howell, 44, Riverside, Abbey Estate, Cambridge.*

National Carnation and Picotee Society.—For the information of your readers, and in order to clear up the doubt at present existing in the minds of prospective members, and thus avoid further confusion, I think it necessary to intimate that there is only one National Carnation and Picotee Society (of which I am the Hon. Secretary), and that it has no sections. There is a Northern Carnation Society with headquarters at Sheffield, which is often wrongly reported and referred to as the N.C.P.S. Northern Section, but that body has no connection with the N.C.P.S. other than that of an ordinary affiliated society. I understand many persons are under the impression that by joining the Northern Carnation Society they become members of the N.C.P.S., and are therefore entitled to the various benefits offered by that Society, but this is not so. Membership forms and subscriptions intended for the National Carnation and Picotee Society should be sent to me, at 10, Bergholt Road, Colchester, or to the Hon. Assistant Secretary, Miss J. B. Wells, Fairlawn, Jeffrey's Road, Clapham, S.W. *A. E. Amos.*

Gardening Fallacies.—The two points in Mr. Callwell's note (p. 154), in which I am especially interested, deal with efficient tools used for many different purposes in a garden, and the age of men expected to use them. There should be no difficulty in these advanced days of science and machinery to obtain efficient and useful tools. A catalogue of these is easily obtainable from horticultural firms who advertise in *The Gardeners' Chronicle*. Their agents or representatives are ever ready to give expert advice, and demonstrate, free of charge, with special tools. In many cases it is not altogether the tool employed that is at fault, but the way it is used and cared for. It should be particularly noted that care of tools is often neglected. Even in times of drought, a little water is available in which they may be washed, and if this is followed by a coating of oil, the life-time of many tools is prolonged, and they will remain in good working condition. Tools of medium size, as example No. 1 spades and forks; a six-inch and four-inch Dutch hoe to form a pair, will be found most suitable. Many men at fifty and sixty years of age can be employed with satisfaction and reliability, and prove equal to one of twenty. I think fifteen to twenty years is not too long a period to be trained in flower, fruit and vegetable culture. Many of our best men are not young gardeners. Taking into consideration the great problem of unemployment among men at the moment, it is only fair to suggest that preference should be given to those men rather than to women, although, perhaps, the services of the latter in gardens may be unsurpassed in certain directions. *Chas. Stapler, Mottingham, Kent.*

SOCIETIES.

DUNDEE HORTICULTURAL.

AUGUST 29, 30 AND 31.—Seldom, if ever, has a finer display been made under the auspices of the Dundee Horticultural Society—now over a century old—than that staged on these dates on the Magdalen Green, Dundee. The entries last year—1,660—were thought to be a record, but this year they totalled 1,860, and comprised in them were admirable examples of the skill and intelligence of Scottish gardeners. The Marchioness of Linlithgow gave the proceedings a happy send-off, and Mr. James M. Martin, the Hon. Secretary, attended to details, while Mr. Alex. Duncan, The Gardens, Duncarse, ably managed the exhibition.

Pot plants have always made one of the best features at this show, and there was no exception on this occasion. Keen competition marked the section, and the judges found no little difficulty in making their awards. Outstanding were the remarkably fine specimens of greenhouse Ferns and Palms, the latter commanding warm admiration. From Invertay Gardens, West Ferry (gr. Mr. George Reid) came a wonderfully fine display. Mr. Reid led for four plants distinct; four exotic Ferns, Pelargoniums, single and double; specimen plant in flower, four British Ferns, distinct; one Tree Fern; a collection of twelve pots of alpines, distinct; four exotic Ferns; and six table plants.

Hazelwood Gardens (gr. Mr. W. D. Grieve), were also well represented, and had premier honours for Begonias, double, in flower; three fine foliage plants; one pot of Liliums; one specimen plant, in foliage; and for Palms. H. HOGARTH, Esq. (gr. Mr. W. Hunter), Delvine, Murthly, showed the finest early-flowering Chrysanthemums; ARCHIBALD RETTIE, Esq. (gr. Mr. J. Margach), Seafield Lodge had the best early-flowering Chrysanthemums, not disbudded; DOUGLAS NAIRN, Esq. (gr. Mr. James Smart), Elmslea, earned warm praise for his finely-grown Lilium auratum; and GEORGE BONAR, Esq. (gr. Mr. Martin Taylor), The Bughties, Broughty Ferry, had fine wins for his Coleuses and Cycas. Rarely have better examples of Coleuses been shown at Dundee.

Cut flowers were an excellent display and reflected the highest credit on all concerned. The Sweet Peas and herbaceous exhibits were noteworthy. The judges had a stiff task in awarding the Corporation Cup for the best exhibit in the section, but the finely-grown flowers sent in from Binrock Gardens, Dundee (gr. Mr. J. Beats), could not be passed over. From the same gardens came the best annuals (hardy and half-hardy), Chrysanthemums and hardy border flowers.

Roses formed a fine feature, and here JOSEPH HARPER, Esq. (gr. Mr. A. Armit), Rathillet, Cupar gained a well-earned victory in the class for twenty-four Roses, H.P. or H.T., distinct, with a notable entry of Hybrid Teas. In the corresponding class for twelve Roses, any one variety, the honours went to Mr. F. WHEELER, Alice Bank, Tayport. The Gladioli and Dahlias from Delvine Gardens were worthy of their awards. Some fine displays were shown among the decorative classes, a prominent winner being Mr. D. BEATS, gardener at Taybank, who scored fine successes for hand bouquets and baskets of Roses. From Balnacraig, West Ferry (gr. Mr. Peter Kerr), came the best wreaths of flowers and bowl of Sweet Peas. Dahlias and border Carnations were finely shown from East Newport (gr. Mr. R. Fernie), but the chief tussle in the cut flowers section was among the Sweet Peas, when those two doughty growers, Mr. J. MACINTOSH, Cornhill, Aberdeen, and Mr. J. B. CAMPBELL, Newport, came face to face. The most meticulous care had to be exercised by the judges in making their awards for the best sixteen vases of Sweet Peas, not fewer than twelve varieties. In the end, however, the Aberdeen man won, and the Macdonald Trophy was placed in his keeping. No doubt the contest was very close, but the best won. These two expert growers have had numerous successes this season. Mr. MACINTOSH gained outright the Silver Cup for Sweet Peas at Elgin, performed a similar feat at Forfar, although not outright, and now comes his Dundee success. Mr. CAMPBELL has also had some fine victories during the season.

Both in regard to entries and the quality of the exhibits, the fruit section was well up to standard, but there have been bigger entries at Dundee. There was a fine show of Grapes, and although better colour might have been seen among the Muscats, it was a meritorious display.

S. H. SHARP, Esq. (gr. Mr. W. M. Willocks), Balruddery House, had the best three varieties, best Black Hamburgh, and the best for bloom. Colonel TYRIE (gr. Mr. Thomas Dobbin), St. Helens, Dundee, also showed winning entries of Black Hamburgh and Lady Downes. From Kinfauns Castle Gardens (gr. Mr. R. Astley), came the best specimens of Muscat of Alexandria Grapes and purple Plums.

H. LYALL, Esq. (gr. Mr. R. Duncan), Old Montrose, was a noted winner in this section, scoring successes for the best collection of hardy fruits, dessert and culinary Apples, Pears, and red Plums. LORD KINNAIRD (gr. Mr. J. Macgregor), Rossie Priory, sent the winning Peaches, Nectarines, yellow Plums, Victoria Plums, dessert Pears, and the best collection of hardy fruits grown in the open. While the classes for Apples were not quite so well filled as they have been at Dundee on previous occasions, they were, all over, and considering the weird season we have had, wonderfully good. The finest came from the gardens of Old Montrose, Rossie Priory, Inchture, Pinegrove, Benvie, The Bughties and Rathcluan. Small fruits were finely represented; Currants, Gooseberries and Raspberries showed commendable quality and earned much admiration.

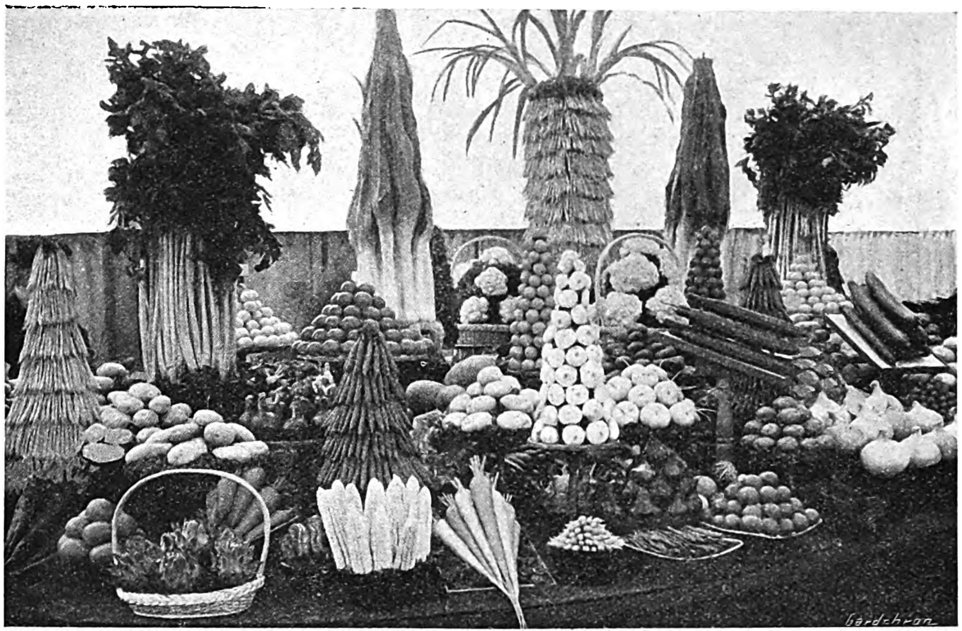

FIG. 105.—SOUTHPORT SHOW: LORD LECONFIELD'S FIRST PRIZE EXHIBIT OF VEGETABLES. (see p. 193).

The vegetable section is always a strong one at Dundee, and, as of yore, a high standard of quality was reached. Carrots, Onions and Turnips were specially fine for size, quality and formation.

The leading struggle was for the best collection of vegetables, twelve kinds, distinct, on a side table, space not exceeding seven feet by four feet. A very close contest took place here between D. H. W. RITCHIE, Esq. (gr. Mr. D. Pullar), Dura, Cupar, and H. HOGARTH, Esq. (gr. Mr. W. Hunter), Delvine, but the Dura collection triumphed. It required experts, however, to mark the distinctions, only one point separating the contestants.

Outstanding entries came from Rathcluan Gardens (gr. Mr. David Dalrymple). These took leading places for Tomatos, Onions (red), Beetroots, Kidney Beans, Potatos and Turnips, Lismore Gardens (gr. Mr. Joseph Dick), led for the best collection of vegetables, six varieties, and for Leeks and Cucumbers. The latter were greatly and deservedly admired. The Cauliflowers from Delvine Gardens were a prominent feature, as also were Peas, Carrots and Parsley from the same source. As one of the judges remarked, there have never been seen at Dundee finer specimens of Cauliflowers than on this occasion. There were samples on view unplaced that were worthy of first places at leading exhibitions, and well-merited praise was awarded the growers.

As might be expected, remarkably fine work was shown by the nurserymen and florists. Many of the fine entries of Roses were simply unimpeachable. Messrs. D. AND W. CROLL, Dundee's famous Rose growers, had matters pretty much their own way in all the classes, with Messrs. CHARLES ARNOT AND SON, Rosebank Nurseries, Forfar, making good seconds.

It is to be feared the judge is not yet born who could accurately discriminate between whether many of the exhibits shown by the amateurs were grown by professionals or amateurs. Very high skill was evidenced in all the amateur's classes and this redounded to the credit of all concerned. The blue ribbon in the amateur section, the Corporation Challenge Cup, was awarded to the best exhibit in the vegetable classes, nine kinds. Mr. ALFRED DRUMMOND, Wester-Fowlis, Crieff, secured the award with 31 points, the runner-up being Mr. A. THOMSON, Blairgowrie, who secured 27½ points. Mr. RICHARD MOORE, Cleghorn Street, Dundee, gained the Cox Challenge Cup for the best exhibit in the pot plant section with four finely-grown foliage and flowering plants. Mr. J. PEARSON, Castle Terrace, Tayport, and Mr. J. G. HENDERSON, Taybank, Newburgh, were prominent for fruits, and Mr. R. FERNIE, East Newport, and Mr. J. S. MARTIN, Milnbank Road, Dundee, were the chief leaders for cut flowers. Mr. DAVID SMITH, Lochee, Dundee, gained the Silver Medal presented by *The Gardeners' Chronicle* for the best amateur's exhibit in the cut flower section, with a remarkably fine group.

The children's wild flower exhibits comprised one of the most successful items of the show, the little ones, all under fourteen, coming forward in large numbers with their posies of wild flowers and grasses; and they made a brave show. FLORA FORSYTH gained first place for the best collection of wild flowers and grasses, while JOAN ELLIS, Grove Academy, had the finest pressed flowers.

Non-competitive displays were shorn a little bit by the absence of southern firms, who invariably put up superb displays at Dundee. No doubt owing to the exhibition clashing with the great Southport event, these firms had determined to limit their displays to that quarter. An exception was made by Messrs. Allwood Brothers, Haywards Heath, which was the only southern firm to make a display. The local nurserymen and florists, however, rose finely to the occasion, and staged some of the finest products ever seen at Dundee. Space will not permit of a detailed description, suffice to state the displays made by Messrs. D. and W. Croll, Messrs. Storrie and Storrie. Messrs. G. and A. Stobie, Messrs. Laird and Sinclair, Messrs. Thyne and Son and Messrs. W. and E. Dryden, were all worthy of the fine traditions of these highly esteemed firms, and added materially to the success of the 1929 Dundee Floral Carnival.

GUILDFORD GARDENERS'.

In continuation of the summer programme of visits to gardens, a small party of members of this Association visited Derry's Wood, near Wonersh.

This is a comparatively new place as gardens go, the house being built by Mr. J. M. Courage in 1903. It is in a situation of delightful seclusion and sheltered on the north by a forest of Fir trees that crown the ridge running from Wonersh right along to Leith Hill. Mr. Joy, of Snowdenham, the former home of Mr. Courage, took a hand in the first lay-out of these grounds, and planted some of the earlier trees. This work was continued by Mr. Elliott, who became head gardener about twenty-three years ago, and still occupies that position. The place has developed under his guiding hand.

There is a great deal of natural beauty in the situation and surroundings. A considerable space is given up to formal gardens, and Yew hedges, clipped in divers shapes, add to their attractiveness, while costly urns containing Fuchsias are dotted here and there. Lawns and borders of annuals and herbaceous plants are all neatly kept and plentifully stocked, as in the large section devoted to Roses. One striking feature was a row of over twenty Red-Twig Limes, the branches of which are trained to meet from one tree to another, as compact as a green wall, with arches that afford delightful shade or shelter.

In the drive, and in fact, all round, are very many rare trees, Japanese Maples, American Red Oak, Cupressus Lawsoniana var. aurea, and Cedars. It is evident that money has been freely spent to create and maintain so charming a place.

In the kitchen garden things were looking remarkably well, and Mr. Elliott said he had grown the best crop of Strawberries he had seen since the dry summer of 1921, when Strawberry trouble began.

In the immediate neighbourhood is the smaller garden of Mr. G. L. Cruddas, at Upper Lostiford, to which a visit was paid. At this place the gardener, Mr. Parkhurst, excels in Carnations, but to the visitors the glory of these gardens was its two double borders, arranged to cross each other at right angles—or it might be called four double borders that meet in the centre. Each wing was filled with summer flowers—dwarf varieties in the front and taller subjects one behind the other. Violas, apricot Nemesias, Phlox Drumondii, Stocks and many other kinds were all in flower, and by common consent were voted to be among the very best to be seen in any garden, small or large.

This outing was too near Bank Holiday, as was shown by the reduced numbers attending, but was very enjoyable to the few who participated.

By permission of Lord Leconfield, a repeat visit was made to Petworth Park, on Saturday, August 17, by members of this Association. A large party availed themselves of the opportunity. The Park itself is enclosed in a wall ten or twelve miles long. The mansion is immense and imposing, a veritable treasure house, and is open to the public on Tuesdays and Thursdays every week from 11 a.m. to 2 p.m.

The gardens, in every section, are the gardens of the specialist, the products being notable alike for variety and excellence, under the guiding hand of Mr. Streeter, assisted by a competent foreman in the person of Mr. Berry, and a staff of about thirty under-gardeners.

Crossing the Park on the way to the garden, a very large Tulip Tree may be seen. This is one of the original five trees of this kind first introduced into England. It is verging towards decay, but even so it bore a tremendous quantity of flowers this year, the ripening seed-pods of which are on the tree. Another still more striking instance of fertility in an advanced stage of decay was seen in an old Medlar tree. This is so far gone that support alone prevents it trailing on the ground. Practically nothing but the outer shell remains, but in it flows the life-giving sap, so that this old relic, stated to date back to the days of Charles I, whose children played beneath its shade, is bearing its usual heavy crop of fruits to-day. Rare trees, old and new are here.

In the gardens everything seems on the same scale. Herbaceous borders run to just a mile, varying from fifteen feet to twenty-five feet in width. One section of this is the experimental site of six hundred new seedling Phloxes. Mr. Streeter is aiming at a plant that will be larger in the truss of flower, strong enough to stand without staking, and of good colour. This large section was seen at its very best, and red, white, and many shades of pink blooms in very large trusses presented a dazzling appearance.

In another section was a demonstration of what can be done with Antirrhinums when grown well. This was a circular bed, in a grass patch surrounded by borders of the same kind of plant. Here again were many colours and plant battalions—thousands of them all in flower. Around the circular bed was an edging of Alyssum maritimum, and a groundwork of dwarf Heliotropes, with standard Heliotropes waving above the whole; a very effective group.

Among the shrubs one small specimen came in for special notice, because of its berries. This was Coriaria terminalis var. xanthocarpa—the berries were in clusters like a small bunch of Grapes, and amber in colour.

In these gardens eighteen varieties of Capsicum are grown; and in a pool there is a bed of Cranberries.

In the houses were several unusual varieties of Tomatos. Peaches were over, but vast quantities were maturing on outside walls. It must be acknowledged that things grown at Petworth House are on a scale not usually seen.

Other factors added to the pleasure of this outing. First, the ideal summer weather that prevailed, and the richness of the summer verdure on all hands; the August rains had given renewed life, and vegetation had the richness of spring, which made the scenery so

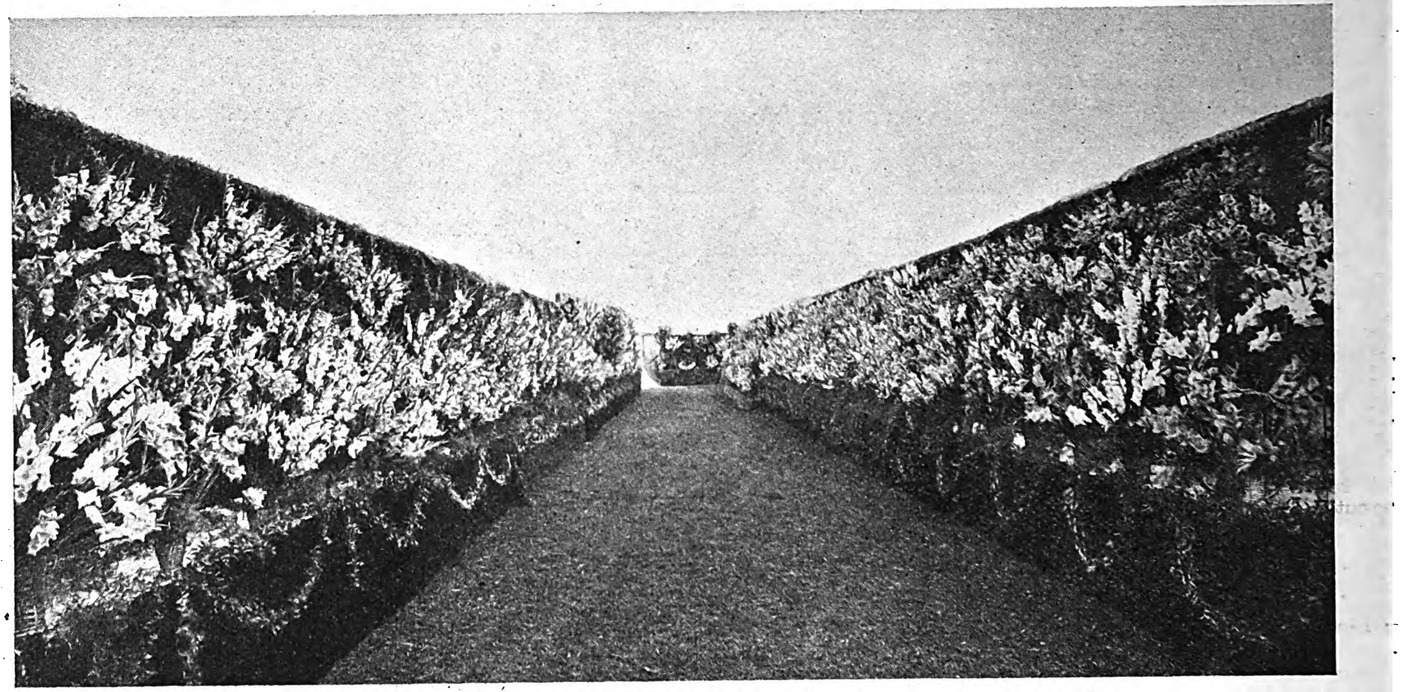

FIG. 106.—SOUTHPORT SHOW: THE "AVENUE" OF GLADIOLI.
(see p. 195).

delightful, especially on the way home, when the road led through Cowdray Park at Midhurst, and again on the hills near Fernhurst which afforded entrancing views across Lurgashall Vale, and away on to the South Downs.

The programme for the season was completed on Saturday, August 31, when a visit was paid to the Royal Gardens, at Frogmore, Windsor, the glories of which cannot, however, be expressed in a paragraph, and must be left to the imagination.

FORFAR HORTICULTURAL.

August 23 and 24.—Forfar, the capital of the ancient and historic province of Angus, and the homeland of the Duchess of York, was *en fete* on these dates, the Reid Hall and its surrounding grounds being the venue of the premier annual horticultural display in the province. There were over 1,100 entries, an increase of fully 400 compared with last year—a record of which the Forfar Horticultural Society has just cause to be proud. Sir Robert Hutchison, M.P., gave the proceedings a happy send-off, and Mr. Andrew B. Caird, the Secretary, made admirable arrangements before and during the show. Mr. James W. Mackintosh, Rosehill, Aberdeen, secured the Silver Challenge Rose Bowl for a superb entry of Sweet Peas. The Silver Cup presented by Lady Hope, Kinnettles, for the most points in the cut flower classes went to Mr. Low, West High Street, Forfar, who also won the Silver Medal for the most points in the show. The Milne Challenge Cup, awarded for the most points in cut flowers and vegetables (confined to amateurs) was gained by Mr. James Brown, Canmore Street, Forfar, with thirty-four points, but the runner-up, Mr. G. Saddler, Forfar, was only one point behind.

The pot plants made a very fine display, and here Mr. Low led for the best table of plants and cut flowers, arranged for effect, with a remarkably good entry. Mr. James Stark, Wardbank, Forfar, led for Begonias, Pelargoniums (single and double), Fuchsias, Coleus and Hydrangeas. Liliums in bloom and Celosias pyramidalis were shown best by Mr. A. Low; Mr. D. Steele, Mid-Langlands, fully earned his victory for Chrysanthemums.

The cut flowers proved very pleasing, and here Mr. A. Low took leading places for Collerette Dahlias, Pompon Dahlias, Stocks, Phloxes, annuals grown in the open, and herbaceous flowers. Mr. D. Steele took premier places for Asters, Pentstemons, Dahlias and wreaths. Other prominent names in the professional classes included Mr. Roy McGregor, Mr. William McGregor and Mr. James Brown, Canmore Street.

Some very good entries were forwarded in the fruit classes. Mr. William McGregor had fine wins for the best collection of fruits, Grapes (white), Apples (culinary), and Red Currants. Mr. W. Forest, Logie, had the best collection of hardy fruits grown in the open, Plums, and Pears. Mr. G. Hendry had easy firsts for Melons, Peaches, Plums, Apples (dessert), Pears and Gooseberries. Mr. Jack Milne led for Grapes (black), Strawberries, Black Currants and Cherries, while Mr. James Stark had the best Black Grapes — for bloom.

Vegetables, as has been the case generally this season, were well shown, and Mr. George Hendry, Carsegrey, was a prominent winner. He had the best collection of vegetables (nine varieties), Onions, Cauliflowers, Cucumbers, Broad Beans, Leeks, Celery (white and red), and Potatos. Mr. A. Low secured premier honours for Potatos, Beet, Vegetable Marrows and Turnips. Other prominent winners here were Mr. P. Lawson, Lunanhead; Mr. G. T. Hardie, and Mr. William McGregor. The most points among professional gardeners were gained by Mr. James Stark (pot plants), 33 points; Mr. A. Low (cut flowers), 71 points; Mr. George Hendry (fruit), 22 points, and (vegetables), 41 points.

Diplomas were granted to Mr. James Mackintosh, Aberdeen, for the best eight vases of Sweet Peas; to Messrs. Bruce and Robbie, Forfar; to Mr. James S. Mackay, Dundee Road, Forfar, for Chrysanthemums; and to Mr. James Brown, for Turnips.

NORTHAMPTON FLORAL FÊTE.

The above Flower Show and Fête was held early in August, in Abingdon Park, and proved a success in every way. Over 25,000 people visited the show.

Competition in the groups of Roses was especially keen. The Dover Challenge Cup was won by The Dowty Roseries, Wokingham, Mr. G. Burch, Peterborough, being placed second, and Mr. H. Drew, Longworth, third.

The Astbury Challenge Cup for Sweet Peas was won by Messrs. E. W. King and Co., Coggeshall, Messrs. H. E. and W. Lach, of Willingborough, being placed second. Messrs. C. Engelmann, Ltd., were awarded the Sears Challenge Cup for a very fine exhibit of Carnations, while for a collection of hardy herbaceous cut flowers, the Panther Cup was awarded to Messrs. Harkness and Sons, Leeming Bar; Messrs. Thomas Perkins and Son, Northampton, were second. Messrs. Sutton and Sons secured the Edward Lewis' Challenge Cup for the best non-competitive display in the show.

Large Gold Medals were awarded to Messrs. John Perkins and Son and Messrs. Thomas Perkins and Sons, both of Northampton, for special collections of plants and shrubs. A Gold Medal was awarded to Messrs. Rambotham, Bletchley, for a group of Roses; and Silver Medals to Mr. John Golding, Fordham, for Scabious and to Councillor E. Ingman, Northampton, for a miscellaneous collection of cut flowers. Mr. T. Burrows, Kingsthorpe, received a Silver Medal for Fuchsias and Ferns; and Messrs. Yarde and Co., Northampton, a Silver-gilt Medal for floral designs. Mrs. Thomson, Braunston, Rugby, was awarded a Silver Medal for a fine collection of vegetables.

For a group of flowering and foliage plants, Messrs. Cypher and Sons, Cheltenham, were first, and Messrs. H. E. and W. Lach, second; and in the class for a collection of tuberous-rooted Begonias, the first-prize was awarded to Sir James Crockett (gr. Mr. W. Meakins), Dallington; second, Berrywood Mental Hospitals (gr. Mr. A. W. Wright). Mr. H. Drew was first for thirty-six Roses; Mr. G. Burch, for eighteen Roses; The Dowty Roseries for twelve Roses; and Mr. H. Drew, for a basket of Roses.

For twelve vases of Sweet Peas, Mr. B. Simcoe, Wollaston, was placed first, while Mr. H. Ellison, Finedon, led for six vases of Sweet Peas.

The first prize, together with the Medal presented by *The Gardeners' Chronicle*, for the best twelve bunches of hardy herbaceous flowers, were awarded to Mr. G. Adams, Kettering. Miss G. Burt, Coggeshall, was first for a table decorated with Sweet Peas. Mr. F. Bostock led for one decorated with Carnations; while for a dinner table decorated with any kind of flowers, Mrs. King, Kempton, received the premier award.

In the fruit section, Mrs. D. C. Guthrie staged the best collection; Mr. G. H. Winterbottom led for black Grapes; and Mr. F. Bostock for white Grapes and Peaches.

Mr. G. H. Winterbottom was first for dessert Plums; Mrs. Borwich (gr. A. G. Moore), for Melons; Sir James Crochett, for dessert Apples; Mrs. Borwick, for culinary Apples; Sir James Crochett, for Gooseberries; Mr. F. Bostock for Black Currants; the Dowager Lady Annaley, for Red Currants; and Sir James Crochett, for Raspberries.

In the open class for a collection of vegetables, for the T. Wall Challenge Cup, there was keen competition, the trophy being secured by Mr. C. Kitchener; second, Mr. G. H. Winterbottom.

The Dowager Lady Annaley led for Tomatos; Sir James Crochett for Potatos; Mr. G. H. Winterbottom, for Onions; Mr. A. Moore, for Peas; Sir Hereward Wake, for Runner Beans; Mr. C. Kitchener, for long Carrots; and Mr. G. H. Winterbottom, for Cauliflowers.

In the amateur classes, Mr. C. S. Duffield took many prizes for Roses and Sweet Peas, including the Tompkins Silver Challenge Cup; Mr. C. Kitchener was very successful in the vegetable classes.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

The three days' show promoted by the above Society in conjunction with the Corporation of Glasgow, was opened in the Kelvin Hall, on Tuesday, September 3, by Lady Inverclyde. There were 467 classes, and the entries numbered 3,980, an increase of 1,500 compared with last year's total.

Flowers.

Pot plants and cut flowers provided a fine display, and except in a few solitary classes, the standard of culture was quite up to the average, despite the unfavourable season in Scotland.

In the class for a group of stove and greenhouse plants arranged for effect on the floor, and occupying a circle twenty feet in diameter, W. G. McBeth, Esq. (gr. Mr. R. White), Dunira, Comrie, won the City of Glasgow Challenge Cup, defeating Mr. W. Smith, Dunecht, and Mr. T. M Petch, Great Horton, Bradford. Mr. John Rae, Biggar, staged the best collection of Begonias, and Sir John Reid (gr. Mr. John Davidson), Ardencraig, Rothesay, was successful in the classes for pot plants, viz., specimen Palm, three Palms, six Nephrolepsis, three Dracaenas, six dwarf table Ferns, six British Ferns and three Kochias. Sir Hugh Reid (gr. Mr. Allan Dunbar), Belmont, Springburn, excelled with six plants for table decoration, three Codiaeums, and in both classes for Liliums.

Roses were of varied quality. Messrs. D. and W. Croll, Dundee, defeated Mr. Thomas Robinson, Nottingham, and Mr. R. C. Ferguson, Dumfriesshire, with a collection of cut blooms, but the last-named competitor excelled in the classes for six baskets of twenty-four blooms; 12 blooms, yellow (Golden Emblem); and twelve blooms, red (George Dickson). Messrs. Adam and Craigmyle, Aberdeen, scored in the class for forty-eight Roses. This was, perhaps, the most even exhibit in the Rose section, and contained clean, well-formed blooms of Captain Kilbee Stewart, Margaret McGredy, Constance Casson, Villa Pia, Edel, Mrs. Barraclough and J. G. Glassford. The Aberdeen firm was also first in the class for twelve varieties introduced since 1926, while their boards of Mrs. Henry Bowles, Madame Louise Crette and Admiration were first in the pink, white, and any other coloured Rose classes. The best cream Roses (Miss Wilmott) were staged by Mr. William Ferguson, Dunfermline.

Mr. J. A. Grigor, Banff, was the most successful exhibitor in the Sweet Pea section, he having been placed first in the classes for twenty-four vases, twelve vases, nine vases and a single vase competition for crimson, pink, cream, orange-pink, orange-scarlet, blue and purple. In the remaining seven classes for single vases of one variety, Mr. John Loan, Coldstream, secured leading awards.

For a collection and for twelve vases of perpetual-flowering Carnations, Messrs. E. Engelmann, Ltd., had no opposition, while Messrs. Torrance and Hopkins, Busby, had a similar experience with their exhibit of border Carnations and Picotees. Other prize-winners in this section were: Mr. Alex. McMillan, Cumnock (six vases Carnations), and Mr. James Smith, Darvel (three vases).

Dahlias were shown in splendid condition, and the competition was notable for the success of Messrs. Torrance and Hopkins, Busby, who were awarded chief honours for their collection, six vases decorative, six vases miniature and six vases Cactus Dahlias, but they were defeated by Mr. Claud Jenkins, Cambuslang, in the class for twelve vases Pompon Dahlias. They found compensation, however, in winning first prize for twelve vases of early Chrysanthemums in open competition. Mr. J. W. Forsyth, Luton, had the best collection of Chrysanthemums, thereby defeating all the local growers.

A double success by Robert Dunlop, Esq. (gr. Mr. James Currie), Barskimming, Mauchline, was recorded in the open herbaceous classes for twelve and six vases, and Messrs. George Mair and Son, Prestwick, excelled with Gladioli, taking the leading place with their collection, for twelve vases and six vases; while Mrs. Lucy Toner, Monaghan, Co. Amagh, was the winner in the class for twelve blooms of Begonias.

Mr. James Paul, Killearn, followed up his successes at Southport in the Pansy and Viola section by gaining the leading awards for twenty-four blooms of fancy Pansies, twelve blooms of fancy Pansies, and twelve blooms of Violas.

The feature of the decorative classes was the decorated dinner tables, for which there were fifty-three entries. Competition was very keen. First prize winners were, for Roses, Mrs. Dixon, Dumfries; Sweet Peas, Mr. A. L. Davidson, Bearsden; Carnations, Mr. William Berry, Lanark; and any other flower, Mrs. Kerr, Bearsden.

Fruits.

The fruit exhibits were a great advance on those of last year, the Grape and Apple classes being noted for superior quality and numbers. The Marchioness of Tweedale (gr. Mr. Alex. McBean) repeated her success at Southport, gaining the principal awards for a collection of twelve dishes, distinct varieties, which carried with it the *Glasgow Herald* Challenge Cup. While the fruits were of general excellence, Muscat Grapes were particularly fine in finish, and helped to secure 72 points, or half-a-point above the runner-up, Viscountess Cowdray (gr. Mr. William Smith), Dunecht. Mr. J. Davidson led with six dishes, his points totalling 40½.

The first prize and the Thomson Challenge Cup for eight bunches of Grapes, went to the Earl of Strathmore (gr. Mr. D. McInnes), Glamis Castle, who received 63 points for Muscat of Alexandria, Muscat Hamburgh, Gros Maroc and Black Hamburgh. The Earl of Mar and Kellie (gr. Mr. J. Buchanan), Alloa House, was second. The Sir John Reid Challenge Cup was awarded to Mr. Hugh McSkimming, Auchenault Gardens, Helensburgh, whose Muscat Grapes were beautifully finished. This exhibit also won a special prize for decoration. Mr. McSkimming also produced the best two bunches of Muscats, one bunch of Muscats, and the bunch with the finest bloom. Mr. James Duff, Threave, Castle Douglas, excelled in the two classes for Black Hamburgh Grapes, and Lord Rowallan (gr. Mr. J. Dixon), Kilmarnock, was first for Madresfield Court Grapes.

Mr. J. Davidson staged the finest collection of Pears, and he was also placed first in three other classes. Mr. Alex. McBean staged the best collection of fruits in the class confined to Scotland, and also scored with six Marguerite Marillat and six Souvenir du Congres Pears. Mr. R. A. Grigor, Dumfries, was the most successful competitor in the Plum classes; Mr. J. Duff excelled in the class for six Peaches, and the first prize for Nectarines went to Mr. A. McLean, Brookhurst, Bromborough.

Apples were outstanding in quality, especially the collection of six varieties grown by Mr. Alex. McBean, consisting of dishes of James Grieve, Emperor Alexander, Gascoyne's Scarlet, Cox's Orange Pippin and Peasgood's Nonsuch. The fruits were remarkable for their great size and high colour. The same exhibitor also excelled in the James Grieve and Cox's Orange Pippin classes, but had to be content with second place in the competition for twelve dessert Apples, first place being taken by Mr. W. Smith, who was also first for twelve varieties, orchard-house-grown. He also led in four other classes, including a collection of cooking Apples.

The following names were also prominent in the prize list for Apples: Mr. W. Campbell, Alexandria; Mr. Duncan McFie, Kames Castle Gardens; Mr. J. Blacklock, Drummond Castle Gardens; Mr. John Eason, Auchmore Gardens, Killin; Mr. J. P. Reid, Suningbrae Gardens, Aberlady; and Mr. J. S. Cowan, Doonholm, Ayr.

Vegetables.

This has been a good season for vegetables north of the Tweed, and the quality of the exhibits testified to first-class culture. Mr. R. A. Grigor was supreme in seven Potato classes, and the other honours were shared by Mr. W. S. Nash, Mauchline; Mr. James Alston, Mauchline; Mr. James Allan, Darvel; Mr. William Laidlaw, and Mr. William Hay. Mr. James Mills, Market Drayton, defeated Mr. John S. Cowan in the big Onion classes, but the latter was first for Shallots and twelve Onions grown from sets.

Tomatos formed a very large class, and the fruits were uniform in size and evenly coloured. Mr. Arch. Brownlie was first in the open class; Mr. D. Forrest, Carluke, carried off the chief prizes for twenty-four and twelve Tomatos; and Mr. James Duff led in the class for twelve yellow fruits.

New Plants and Flowers.

First Class Certificates.—Rose, Winnie Bell, shown by Messrs. Dobbie and Co.; a seedling Carnation, Mrs. D. Carlow, shown by Messrs. Torrance and Hopkins; seedling Chrysanthemums Robert McAlpine and Mrs. James Philp, raised by Mr. Alex. McAlpine, Tollcross.

Certificates of Merit.—Seedling Antirrhinum, raised by Messrs. Austin and McAslan; seedling Chrysanthemum, Afron, raised by Mr. Alex. McAlpine, and four seedling Violas, Ann Walker and Isobel, raised by Mr. Quinten McFadyen, Carluke; Nessie Douglas, raised by Mr. John Douglas; and William G. Whyte, raised by Mr. James M. Whyte.

Non-Competitive.

Trade exhibits were numerous, varied and attractive, and contributed materially to the success of the show. Six garden designs suited to the requirements of the modern cottage or bungalow type of residence were laid out and planted by the City Parks Department. Annuals, hardy perennials and shrubs were used in variety in the planting of beds and borders and various forms of hedging were introduced. A Large Gold Medal was awarded.

Two specimens of landscape gardening were provided by Messrs. Backhouse, Ltd., and Messrs. Austin and McAslan, and represented different examples of rock garden art. Each received a Large Gold Medal. The following awards were also distributed:—

Large Gold Medals.—To Messrs. Dobbie and Co., for Roses, Dahlias and Sweet Peas; Messrs. Austin and McAslan, for vegetables; and Messrs. Sutton and Son, for vegetables.

Gold Medals.—To Messrs. Samuel McGredy and Son, Portadown, for Roses; Mr. M. Rae, Biggar, for Begonias; Messrs. C. Engelmann, Ltd., for Carnations; Messrs. Laird and Dickson, Edinburgh, for alpines; Scottish Co-operative Wholesale Society, for Roses; Messrs. Allwood Bros., for Carnations; Messrs. Thyne and Sons, Dundee, for cut flowers; Messrs. Dobbie and Co., for Potatos and Orchid-flowered Dahlias; Messrs. Austin and McAslan, for Roses and Ferns; Mr. T. Smith, Newry, for shrubs and hardy plants; and Messrs. R. K. Gemmell and Co., for cut flowers.

Silver Medals.—To Messrs. Blackmore and Langdon, for Begonias; Messrs. Dickson and Co., for Roses; Messrs. Isaac House and Son, for Scabious; Messrs. T. Dagg and Son, for herbaceous flowers; Kippen Vinery Co., for Grapes; Messrs. Alex. Lister and Son, Rothesay, for cut flowers; Messrs. Leighton, for herbaceous flowers; Mr. Peter Aitken, Bathgate, for alpines; Messrs. Matthew Campbell and Son, Blaintyre, for Dahlias and border Carnations; Messrs. Fairbairn and Son, Carlisle, for Phloxes; Messrs. Storrie and Storrie, for fruits and pot plants; and Messrs. Williamson and Co., for Roses, Dahlias and alpines.

Bronze Medals.—To Messrs. John Forbes, Hawick, for herbaceous flowers; Messrs. Maxwell and Beale, for a rock garden.

Certificates were awarded to Messrs. Daniel Bros. Norwich, for Larkspurs and Gaillardias; and Messrs. Ramsbottom and Son, for Delphiniums.

ROYAL HORTICULTURAL.

September 10.—There was a particularly good show at the new Horticultural Hall, Westminster, in association with the fortnightly meeting of the Society on this date. Seasonable border flowers, particularly Michaelmas Daisies, Heleniums and secondary spikes of Delphiniums, were prominent among many other kinds, while there were many exhibits of Dahlias. Gladioli and Roses. The floral novelties were varied and interesting, and the Floral Committee recommended five Awards of Merit to novelties. The Joint Dahlia Committee inspected a large number of new Dahlias and selected the best for trial at Wisley. There were no groups of Orchids, but the Committee recommended two First Class Certificates and three Awards of Merit to novelties. There was a meritorious collection of pot fruits and several smaller exhibits, but no novelty of moment, before the Fruit and Vegetable Committee.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Frederick J. Hanbury, Mr. Richard G. Thwaites, Mr. J. C. Cowan, Mr. Fred. K. Sander, Mr. Robert Paterson, Mr. W. H. Hatcher, Mr. J. E. Shill, Mr. H. G. Alexander, Mr. Charles H. Curtis and Mr. E. R. Ashton.

Orchids were shown very sparingly on this occasion. No groups were exhibited in the hall, but ten plants were presented for the consideration of the Committee; Mrs. Carl Holmes, Gus Meyer, Esq., and Messrs. Charlesworth and Co., were among the exhibitors. The next meeting of this Committee will take place on Thursday, September 19, at 11 o'clock; and the following meeting will be on October 2 at the same hour.

First Class Certificates.

Laelio-Cattleya Titymona, Stonehurst var. (*C. Tityus* × *L.-C. Momus*).—A fine Orchid but scarcely up to F.C.C. form as compared with some shown recently. The sepals and petals are purplish-mauve, and the fine lip is deep crimson-purple with a golden-veined throat. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly, Sussex.

Laelio-Cattleya Queen Mary var. Crimson Glory (*L.-C. Lustre* × *C. Peetersii*).—A fine, bold Laelio-Cattleya, with big, widely-expanded flowers. The sepals and petals are rich mauve-purple, while the splendid lip, neatly frilled, is of very intense, dark crimson-purple, a trifle paler in the front centre, and there is a small white spot on each side of the throat. The plant shown carried three handsome flowers on one spike. Shown by R. Paterson, Esq.

Awards of Merit.

Brasso-Laelio-Cattleya Golden Crown var. John Band (*B.-L.-C. Joan* × *C. Venus*).—A beautiful hybrid with flowers of good size and excellent substance. The sepals and petals are not so overlapping as in some hybrids, but they are of clear, bright, golden-yellow, while the wide, finely frilled lip is deep rosy-cerise, with old-gold veins in the throat. Shown by F. Mercer, Esq. (gr. Mr. J. Band), Clovelly, Steyning, Sussex.

Brasso-Cattleya The Duchess (*L.-C. Illustris* × *Brasso-Laelio-Cattleya The Baroness.*).—A showy hybrid, although not of the best form. The sepals and petals are clear golden-yellow and the lip deep yellow with a wide marginal band of pale rosy-pink. Shown by R. Paterson, Esq.

Laelio-Cattleya Cavalese, Stonehurst var. (*L.-C. Lustre* × *C. Fabia*).—The flower of this hybrid is of unusually rounded form, and carries very broad, rounded petals, which, like the sepals, are clear mauve. The rounded lip is deep rich purple, with a paler margin to the handsomely frilled edge. Shown by R. Paterson, Esq.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. D. Ingamells. Mr. James B. Riding, Mr. A. E. Vasey, Mr.

William Howe, Major George Churcher, Mr. R. Findlay, Mr. D. B. Crane, Mr. Charles E. Pearson, Mr. G. W. Leak, Mr. Courtney Page and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. G. Reuthe, Mr. W. G. Baker, Mr. Amos Perry, Mr. F. G. Preston, Hon. Henry D. McLaren, Lady Beatrix Stanley, Mr. A. Bedford, Mr. L. R. Russell, Mr. Reginald Cory, and Sir William Lawrence, Bart.

Awards of Merit.

Calluna vulgaris var. flore pleno.—This pretty and graceful double-flowered variety was found in Hampshire by the exhibitor. The variety has an exceptionally long central growth which, like the secondary shoots, is wreathed with double, pale pink flowers. Shown by Messrs. Maxwell and Beale.

Ixora lutea.—According to the *Botanical Magazine*, a plant of this species was received at Kew from the Royal Botanical Garden, Peradeniya, Ceylon, about a quarter-of-a-century ago under the name Ixora coccinea var. lutea. But, while it is allied to I. coccinea, I. lutea differs in its more lax inflorescence, the larger, ovate-rhomboid lobes and, of course, its yellow colour. The species is figured in *Bot. Mag.*, t. 8,439. A dwarf, well-grown plant bearing two trusses of creamy-yellow flowers was shown by Messrs. L. R. Russell, Ltd.

Pentstemon antirrhinoides.—This pretty, half-hardy, shrubby species was discovered in California by Dr. Coulter in 1824. Apart from the beauty of a well-grown plant, it is of special interest in having canary-yellow flowers, a colour which rarely appears in a genus of which most of the species are red-violet, purplish or blue. Unfortunately, the species is not hardy, but requires the protection of a wall, even in the warmer parts of the country. It is a small, freely-branching shrub bearing tiny, shining, opposite, ovate-acuminate leaves, and usually solitary flowers, terminal on the short side growths. A good illustration appears in *Bot. Mag.*, t. 6,157. Shown by the Director, John Innes Horticultural Institute.

Pernettya leucocarpa (*Comber* 501; 1926).—A low, creeping shrub from six inches to twelve inches in height. It differs from the well-known P. mucronata in its prostrate habit and softer, entire, small, linear leaves. The bush bore several clusters of relatively large, milk-white fruits. Shown by Lt.-Col. Messel, O.B.E. (gr. Mr. J. Comber), Nymans, Handcross.

Xanthosoma violaceum.—A warm greenhouse Aroid from the West Indies, and of uncommon appearance. The stems of the sagittate-ovate leaves and the flowers are of deep violet colour. The long spathe is bright yellow. Shown by Mr. Amos Perry.

Trial at Wisley.

Helenium autumnale var. Chipperfield Orange.—A not unattractive form of this popular autumn herbaceous plant, the golden-yellow blooms being lightly shaded with orange, but not sufficiently to justify the varietal name. Shown by Messrs. H. Simmonds and Sons.

Groups.

Just inside the hall, Mr. Amos Perry set up a pretty, low group of seasonable border flowers, which included his new Anthemis tinctoria Perry's var., the graceful little Tritoma Nelsonii, a goodly breadth of Verbena chamaedrifolia, Lapeyrousia grandiflora and Gentiana Farreri, while at one end there was a selection of aquatics. Collections of hardy border flowers were also shown by Mr. A. Miles, Dr. Septimus Pye, who included Dahlias and Chrysanthemums, Messrs. H. Simmonds and Sons, and the Misses Hopkins.

On a considerable wall space, Messrs. Barr and Sons set up a splendid collection of the best Montbretias, with large stands of Lilium sulphureum, L. auratum, L. speciosum var. rubrum and Romneya trichocalyx. Messrs. Hewitts had a very good exhibit of robust secondary spikes of many Delphiniums, and, near-by, Messrs. J. Vert and Sons showed a number of stems of double-flowered Hollyhocks bearing shapely flowers of very good colours. Messrs. B. Ladhams, Ltd., filled a long table space with useful border flowers, especially Michaelmas Daisies, Coreopses and Gladioli. Messrs. E. J. Redgrove and Son included a large vase of Physalis Franchetii and Michaelmas Daisies in their group of border flowers.

A goodly collection of Sweet Peas set up by Messrs. Dobbie and Co. included such beautiful varieties as Magnet, Mrs. A. Searles, Charm and Hero, while on the floor, they had fine strains of Zinnias and Marigolds of different types. Messrs. Hollamby's Nurseries filled a small table with ornamental Vines and Ivies. Messrs. Robert Veitch and Son had a miscellaneous collection of shrubs which included several varieties of Hibiscus syriacus, Myrtus Luma, Cornus Kousa and some well-fruited ornamental Crabs. Messrs. Maxwell and Beale had a small collection of Heaths.

A collection of particularly well-grown stove plants set up by Messrs. L. R. Russell, Ltd., included beautifully coloured Codiaeums (Crotons) and Cordylines, Ixoras in variety, Rondeletia speciosa and Dipladenia amoena var. John Peed. Various Eucalypti, Cannas and Ericas were grouped by Messrs. Stuart Low and Co. Especially good Roses were staged by Messrs. B. R. Cant and Sons, Messrs. D. Prior and Sons, Mr. J. H. Pemberton and Messrs. Wheatcroft Bros. In anticipation of the next day's show groups of Dahlias were staged by several growers. Messrs. Allwood Bros. and Messrs. C. Engelmann, Ltd., had their customary collections of fresh and fragrant Carnations.

A large floor space was filled by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, Hertfordshire, with a great many splendidly grown plants of the Cape Scented Pelargoniums. Altogether nearly one-hundred-and-fifty sorts were represented, and a goodly number were duplicated. In addition to their charm of foliage, form and fragrance several sorts had distinct floral value; the chief of these were Clorinda, Edinburgh, Petersham Pet, Prince of Orange, Unique and echinatum var. album. Collections of Gladioli were staged by Messrs. R. H. Bath, Ltd., Messrs. Kelway and Son, Messrs. Dobbie and Co., Mr. H. Prins and Messrs. Daniels Bros., who also showed the useful Gaillardia Tangerine.

Joint Dahlia Committee.

Present: Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. J. Cheal, Mr. Robert Fife, Mr. D. B. Crane, Mr. Arthur Turner, Mr. James B. Riding and Mr. A. E. Vasey.

The Committee considered the merits of many novelties and selected the following for trial at Wisley:—

Schneider.—A Miniature Paeony variety of good form, with scarlet-crimson, velvety, waved petals.

Tunis.—A small-flowered Pompon Dahlia with fluted petals, terra-cotta on the outside, darkening to light crimson at the centre.

Darjeeling.—A shapely, Miniature Paeony variety, the recurved petals being bright orange, yellowish on the reverse and at the base.

Bhopal.—A Miniature Paeony Dahlia with bright orange-scarlet flowers.

Faygate Star.—The curved petals of this variety are orange-scarlet, with the margins curled back to give them a very slender appearance. This, and the four preceding varieties, was exhibited by Messrs. J. Cheal and Sons.

The Ranee.—A dark-foliaged Miniature Paeony Dahlia with bright scarlet blooms of good form. Shown by Mr. A. J. Cobb, Reading University.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. H. S. Rivers, Mr. W. H. Divers, Mr. H. V. Taylor, Mr. H. Markham, Mr. E. Neal, Mr. E. Beckett, Mr. A. Bullock, Mr. A. Poupart, Mr. F. Jordan, Mr. C. G. A. Nix, Mr. J. Cheal and Mr. A. Rawes, Secretary.

Other than the naming of fruits and the inspection of two seedling Apples, which were considered to be inferior to existing sorts, this Committee had very little to occupy its attention.

Groups.

Messrs. T. Rivers and Son arranged an excellent group of fruit trees and vines in pots, all the specimens being of very healthy appearance and heavily laden with fruits. Plums were represented by President, Coe's Golden Drop and the richly coloured Late Orange; Peaches by Sea Eagle, Nectarine Peach, Prince of Wales and Princess of Wales; and Nectarines by Spenser, Byron, Stanwick Elruge, Darwin and Pineapple. Peasgood's Nonsuch, Worcester Pearmain and James Grieve were among the Apples staged in this excellent group.

Messrs. Stuart Low and Co. associated a few dishes of Apples with their collection of pot plants, and Mr. J. J. Kettle showed fruiting sprays of Raspberries Perpetual Giant, red and Lord Lambourne, golden-fruited.

Messrs. B. Ladhams, Ltd., showed a dish of excellent fruits, together with heavily laden sprays, of Blackberry Shirley Prolific.

BARE HORTICULTURAL.

The Bare Horticultural Society had a fine day, a record number of entries, and a good attendance on the occasion of its eleventh annual exhibition, at Happy Mount, Morecambe. The Mayor and Mayoress of Morecambe opened the show.

The Waddilove Cup, for the most points in the open flower section, was won by Mr. Frank Smith, Bare; the Ceres Ridge Bowl, for the best collection of cut flowers (open), by Messrs Ratcliffe and Tomlinson, Bare; the Overend Cup, for the best collection of vegetables (amateur and cottagers), by Mr. J. Parkinson, Bolton-le-Sands; and the Bare Institute Trophy, for the best trade exhibit, was won outright by Messrs. Webb and Co., Kendal.

In the fruit classes, Mr. T. Cole, Torrisholme, carried all before him, as did Mr. W. Robinson in the open vegetable classes. Trade exhibits were staged by Messrs. Webb and Co., and Messrs. G. Gibson and Co., Leeming Bar, the latter staging a fine exhibit of cut Roses.

DUMBARTONSHIRE SWEET PEA.

The twelfth Annual Show of this Society, which was held at Dumbarton during August, was the most successful in its history. The number of exhibits created a new high record; there was a better attendance of the public, and the quality of the blooms was surprisingly good considering the unfavourable weather conditions. There were forty-eight classes and these were mostly well filled.

In the open section for Sweet Peas, Mr. Charles Glass, Cardross, defeated Mr. James Paul, Killearn, in the class for eighteen vases, and Mr. George Ballingall, Dumbarton, was first for twelve vases, and for six vases with well-grown examples of Youth, Chieftain, Flamingo, What Joy, Jessie and Powerscourt.

Mr. F. G. Dunbar, Kilmahew Gardens, Cardross, was the most successful exhibitor in the gardeners' and amateurs' section. He won the Society's Cup for the best twelve vases for the third year in succession, carried off the special prize for nine vases, and was placed first for three vases, and for the vase of a cerise variety.

Roses were a superior class. A feature was the success of Mrs. Russell, Newton-Mearns, in the open and gardeners' and amateurs' classes. Out of six exhibits staged she was awarded five first prizes, while her vase of Mrs. A. R. Barraclough received special recognition as the best vase in the show.

Carnations were not numerous, but the quality was good. Here Mr. James Smith, Darvel, excelled in the class for three vases, and he also staged the best decorative vase and the best vase in the show.

Bouquets were well represented in the Decorative section, and chief honours in both classes were credited to Mr. William Holmes, Junr., Helmsburgh, who was also responsible for the best basket of Sweet Peas.

Trade exhibits consisted of Roses by Messrs. Austin and McAslan, Glasgow, and Sweet Peas, by Messrs. Dobbie and Co., Edinburgh.

ANSWERS TO CORRESPONDENTS.

Cuttings of Black Poplar.—*E. G. M.* Cuttings of Black Poplar may be made at any period between the fall of the leaves and the end of February. It is usual to take well-ripened shoots—anything from half-an-inch to a quarter-of-an-inch in thickness—cutting them to about one foot in length and burying the lower nine inches in the soil. Much larger cuttings, however, are sometimes used, particularly when cuttings are to be inserted in the positions that the future trees are to occupy. When the cuttings have to be inserted in a nursery the small ones are the kind that should be used. They will commence to grow early in summer and probably form shoots three feet long by autumn. They may be transplanted and kept in the nursery for a second year, or they may be planted into permanent positions direct from the cutting bed. A second year in the nursery is, however, advisable. The tree that is usually known as Black Poplar is Populus serotina, and you should find no difficulty in procuring cuttings. If you know of anyone who possesses large trees they will probably give you what you require, or charge a small amount. Should you not know anyone, if you write to Messrs. Hillier and Sons, Nurserymen, Winchester, they would be able to supply cuttings, or small plants.

Disagreement over Letting of Garden.—*E. F. B.* From the information before us, it would appear that all the terms of the proposed letting were not definitely agreed, and this view is supported by the fact that the owner started negotiations elsewhere after you had informed him you did not intend to proceed. Unless your letter amounted to a contract to take the place, you should not pay anything.

Gladioli Diseased.—*H. P.* The Gladioli are suffering from Fusarium wilt disease. Little is known at present as to the reason for the sudden infection of the corms. Destroy by fire all infected corms, skin healthy corms and soak them in a two per cent. formalin solution for half-an-hour prior to planting next year; replant them in fresh soil as far removed from their present position as possible. Infected corms cannot be saved.

Large Insect in Greenhouse.—*B. S.* The insect caught flying in the greenhouse is known as the Giant Wood Wasp, Sirex gigas. The larvae bore into the stems of Pine and Larch trees, especially if the trees are unhealthy. The species is widely distributed in Britain. The larvae are often present in imported timber, which, if stacked for some time, allows the life cycle to be completed so that the adults emerge in districts far removed from where the eggs were deposited.

Lime Trees Harmful to Bees.—*N. T. B.* It is quite true that at least one Lime tree has harmful effects upon humble bees, but these effects have not been noted in the case of hive bees. This particular Lime is Tilia petiolaris, and it is one of the most handsome of all Limes. A Lime tree that is almost equally good is Tilia euchlora. This has very bright green leaves, and it flowers later than the common Lime. The leaves do not become dirty by honey-dew, and it keeps its fresh appearance until the leaves fall; this Lime would probably be the more satisfactory one for you to cultivate. So far as observations have gone, it is not harmful to bees.

Muscat Grapes Discoloured.—*H. W.* The Muscat Grapes indicate that the plants have received more than sufficient water for their requirements. The cemented border is a disadvantage, for the operation of watering, always difficult in the case of Vines, is rendered more so. Maintain a drier atmosphere, and do not remove any of the laterals or foliage as these allow plants to get rid of excess water. The rusty appearance of the berries is brought about by draughts, so that the ventilation of the house must receive greater attention.

Name of Fruit.—*A. S. M.* Apple Duchess's Favourite.

Nymphaea Foliage Diseased.—*W. G. G.* The Nymphaea foliage is infected with the fungus, Ramularia nymphaearum. Remove and burn infected leaves and drain off old water and refill the pond with a fresh supply. The presence of rock salt in the water is decidedly distasteful to these plants.

Palm Foliage with Scale.—*M.* The Palm leaf is heavily infested with a scale insect, Aspidiotus species. The foliage should be sponged with a one per cent. solution of Volck, and washed afterwards with clear water. The yellow band on the leaf is due to the absence of light, caused by the overlapping of other leaves. There is no sign of disease in these areas.

Peaches and Nectarines Unhealthy.—*D. M.* The Nectarine fruits and leaves were badly attacked by thrips, a very small insect, possibly introduced by plants of some kind, such as Azaleas. When allowed to increase they become very troublesome and destructive, as they destroy the foliage by feeding along each side of the midrib, and attack the fruits at the apex, which causes the skin to dry up and crack. Thrips are seldom found if good daily syringing with clear, soft water is practised. If syringing is neglected, or carried out in a careless manner, thrips will appear as a natural consequence. One fumigation with XL All, or syringing with XL All Insecticide or Tabacco water generally kills the old insects, but it has no effect on the nymphs (young), so it should be repeated three times in about ten days, and alternated by forcible syringings with clear, soft water. Dress the trees with Gishurst Compound during the winter months when dormant and clear of leaves. The shoots of the Royal George Peach were shrivelled, and appeared healthy, but weak. If you suppress the strong shoots next year by pinching, and allow the weaker ones to grow, the balance of the tree will be righted.

Stocks for Apples and Pears.—*H. G. M.* You can buy the various stocks for budding and grafting Apples and Pears from almost any fruit nurseryman during the winter and spring months. Seedling stocks embrace a very broad range (see p. 200), and may be grown from cider refuse, but it is much better to have selected stocks. The seedling Apple may be used for free fruiting varieties but not for strong growers. Crab stock is used for standard or orchard trees and also for weak-growing varieties. The various forms of Paradise are layered, and are best for pyramids, bushes and cordons, and all more or less tend to encourage the early production of fruits. The same remarks apply to the Quince stock, which is best suited for pyramid and bush Pears. The Pear stock is generally used for standard trees, and in some cases for the weak varieties.

Tomato Plants Failing.—*H. C. W.* We fail to find any parasitic fungi on the Tomato plants. The symptoms suggest that the trouble is due either to faulty fumigation, or that the compost in which the plants are growing is entirely unsuitable. The plants appear to have received a check, and show no desire to make further growth. The continued use of the same soil will induce this condition and may be remedied by steam sterilisation and the addition of fresh loam to the compost. It may be advisable to try the effect of small dressings of nitrate of soda to see whether they will break away.

Tomato Fruits Splitting.—*D. J. H.* (1) Some Tomato varieties are more susceptible to splitting than others. Splitting is usually caused by irregular watering. The skin becomes hard when water is withheld, and a sudden swelling of the cortex, following the application of copious water, bursts the hard skin. (2) Green Back of Tomato fruit is caused by exposure to strong sunlight, and is frequently produced when too much foliage has been removed. Plants receiving too little potash are most susceptible to this disorder. (3) Usually 17,000 Tomato plants are allocated to one acre. The plants are set out one foot apart in rows; the rows are alternately eighteen inches and twenty-seven inches apart, the wider rows offering sufficient space for the workers. Under these conditions the average yield is about 5¼ lbs. per plant. (4) The cost of heating four Tomato houses, each 200 feet by 30 feet, should not exceed £250 per year.

Vines Unhealthy.—*N.H.* The Vine shoots and leaves sent for examination rather suggest that your Vines are suffering from the Vine louse, Phylloxera, but this could only be confirmed by a thorough examination of the roots. The trouble is largely due to excessive dryness of the roots, which have possibly been neglected for a number of years. As you have decided to replant the remainder of your border, you ought certainly to remove the two young canes you have planted in the old border, especially as they are affected. You will then be sure of removing the cause of your trouble.

Viola and Apple Leaves Unhealthy.—*A. W.* The Viola foliage is infested with red spider, and should be sprayed with Volck, the lower surface of the leaves receiving special attention. If the plants are dying off the cause is probably a root-rot fungus, in which case we must have an entire plant to examine. The Apple leaves show no sign of disease, and the mottled appearance suggests that the cause is either due to spraying with an oil wash applied in bright, sunny weather, or that the hot ashes of a garden fire have been distributed over the plant. It is not typical leaf-scorch.

Violas Dying Off.—*W. A. T.* The roots of Violas are liable to be attacked by fungus diseases as well as live creatures in the soil. What you call wireworms are probably one of the snake millipedes, namely, Blanjulus pulchellus, judging from your description. The roots may also be destroyed by a species of Fusarium, and also Phytophthora terrestria, both fungi. We do not think you will be able to grow Violas among Roses for more than one or two years, because the soil is too rich in decaying vegetation and cannot be trenched. You could plant Nepeta Mussini among Roses, or some other low-growing plant, and select a piece of ground for Violas that can be trenched thirty inches to two feet deep, and manured in the autumn. Turn the top spit into the bottom, and bring up the lowest spit to the top, laying it up in ridges for the frost, rain and air to sweeten. The millipedes may be driven away by dusting the ground among the Roses with lime and soot occasionally, and by hoeing the ground frequently during the summer and autumn. The chief enemy of the Stocks is most likely the fungus, Phytophthora terrestria, otherwise named P. hypogaea. The trouble is usually contracted in the seed-boxes. All soil for seed-sowing should be sterilised with boiling water for half-an-hour and then dried before use. Plenty of air should be given to Stocks from the time they germinate until planted out, to dry up surface moisture, and care should be exercised not to overwater them.

Communications Received.—W. H. T.—R. S. A.—F. T.—G. S. H.—M. R. T.—P. L. A.—F. R. S.—N. J. W.—O. T. A.

TRADE NOTE.

An error occurred on p. 192 of our issue of September 7. The honour of winning the premier award in the Southern Class for a group of Roses, forty feet by four feet, at Southport, belongs to Messrs. Frank Cant and Co., Ltd., and not to the firm to whom it was credited.

THE
Gardeners' Chronicle

No. 2230.—*SATURDAY, SEPTEMBER* 21, 1929.

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SUPPLEMENT PLATE.
Ostrowskia magnifica.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 55·2°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, September 18, 10 a.m. (Greenwich time). Bar. 30·. Temp. 60°. Weather, overcast.

Potato Virus Diseases: Leaf Roll.

IN our issue of September 14, p. 197, an account was given of Dr. Kenneth M. Smith's work on the relations which obtain between the Aphis, Myzus persicae, and the virus disease of Potatos known as Mosaic. In this work it was definitely shown that, whereas under experimental conditions this Aphis has not so far been shown capable of transferring the virus of Mosaic disease from one Potato to another, yet it can undoubtedly carry the disease, for when kept in contact with Potatos stricken with Mosaic disease, Myzus persicae, when transferred to Tobacco plants, sets up a malady therein, which malady when retransferred to the Potato appears as a virulent form of Mosaic. Even less obscure is the part played by the Aphis in disseminating Leaf Roll, another virus disease of the Potato. Just as is the case with other virus diseases, a specific agent appears to be the carrier. One species of Leaf Hopper, and apparently one only, carries Streak, a virus disease of Maize, so with Leaf Roll, Myzus persicae is the only known carrier. Once the Aphis has inoculated itself with it, the virus persists for a long time in its system. Thus, infective Aphides kept for so long as seven days on an indifferent host plant (Cabbage) still retain their power of infecting Potatos with Leaf Roll. Nevertheless, the virus, according to Dr. Smith's investigations, cannot be handed on from one generation of Aphis to the next. For which relief much thanks! When the Aphis is harboured by a Potato plant suffering from numerous virus diseases, the only one which it can effectively transfer to a healthy Potato is Leaf Roll. Once the Potato is inoculated with the virus it takes about from eighteen to thirty days for the symptoms to develop. In all, some seven varieties of Potato have been used in these experiments, and there seems to be no ground for believing that any variety can offer any marked measure of resistance to Leaf Roll. All appear to be equally susceptible. As illustrative of the virulence of the virus of this disease, Dr. Smith compared the effects of transferring to Potatos few or numerous Aphides of the carrier species which had been in contact with Potatos affected with Leaf Roll. The few (two) Aphides were just as potent in inducing the disease as the many. Hence, it is to be concluded that a very little virus goes a very long way, and, indeed, it cannot be doubted but that the virus, although it may not be regarded as a micro-organism of ordinary kind, nevertheless possesses the typically vital property of multiplying itself. Whether, after all, these viruses will prove actually to be micro-organisms of extreme minuteness, cannot at present be stated. The fact that they are filter-passers, that is, may be filtered with unimpaired powers through a Pasteur Chamberland filter, is not in itself evidence against viruses being micro-organisms, for there are known to exist certain bacteria and other microscopic forms of life which can be filtered. Dr. Smith's contributions to the many problems relating to Virus diseases of Potato are so valuable that we hope it may be possible soon for him to bring them together in a more connected form.

Our Supplement Plate.—The subject of the Supplement Plate presented with this issue is Ostrowskia magnifica, a plant of singularly noble aspect, but which does not thrive in all places and is often disappointing. Instructions for its successful culture are voluminous, but in reality it is one of those plants which are by nature capricious and require for their well-being just that one position so difficult to find. A deeply-worked soil and a copious supply of old mortar or brick rubble, with a warm, sheltered situation, would appear to offer the best chances of success, and when once happy, the plants should enjoy immunity from disturbance. The Carrot-like roots—they will penetrate to a depth of two feet or more—are very brittle, so that careful handling is essential. Seeds of O. magnifica may be germinated in a cold frame, but some years elapse between sowing and flowering—a small matter when the ultimate reward is so great. Seedlings usually display slight variations from the type. The huge blooms, reminiscent of a glorified Platycodon, are delicate greyish-mauve, suffused with white, and as the stems will tower to a height of several feet—plants of over eight feet have been recorded—the plant is of stately appearance. The Supplement Plate depicts a plant flowering in the gardens of Watermoor House, Cirencester, the residence of Thomas Kingsate, Esq., C.V.O. The height of this specimen was seven feet four inches; the diameter of an individual bloom was six-and-five-eighths inches. This plant is growing in a position shaded from the morning sun, and is in close proximity to a large shrub-covered rock; the soil is deep, well-drained and rich in humus and the plant has occupied its present position for some years, four at the least.

Southport Flower Show.—The great flower show held annually at Southport was established in 1924, when the attendance was 45,394 and the revenue £3,354; in the following year the figures rose to 58,554 and £4,535, respectively; in 1926, the visitors numbered 67,514. and the income came to £8,896; in 1927, there were 84,087 visitors, and the receipts amounted to £10,370, but in 1928, a wet season, there was a drop in attendances to 82,653, although the takings increased to £11,275. Success has been continuous, and this year the attendance records were as follow:—Wednesday, August 28, 24,847; Thursday, August 29, 49,727; Friday, August 30, 24,586, or a total of 99,160, while the takings amounted to the handsome sum of £13,040. The Flower Show Committee hoped the attendance would reach the 100,000 mark, but although this hope was not realised, no one was disappointed with the result.

Dutch Method of Preserving Potatos.—A method of preserving Potatos for feeding to stock, as practised by Dutch farmers, is described by Mr. T. Dunlop in the *Scottish Journal of Agriculture*, 12, p. 318. After first washing the tubers, they are steamed in as little water as possible, and when the liquid has been poured off they are packed firmly into pits three feet deep. Old Jute bags are placed over the Potatos, and these are covered with a layer of soil about a foot deep; if the climate is wet the pits are thatched over. When so treated, and provided the packing is done carefully, so that all air is excluded, the Potatos keep in good condition for a number of years. Salt is needed before feeding the Potatos to stock, if it was not added during the process of steaming. The total cost of labour, etc., for treating the Potatos is estimated at 2s. a ton, and it is stated that very little depreciation in feeding value and flavour occurs as a result of the steaming and storing.

Honour for Sir William Lawrence.—Our congratulations to Sir William Lawrence, Bart., Burford, Dorking, upon whom the French Government has conferred the honour of Officier du Merité Agricole, for services to horticulture.

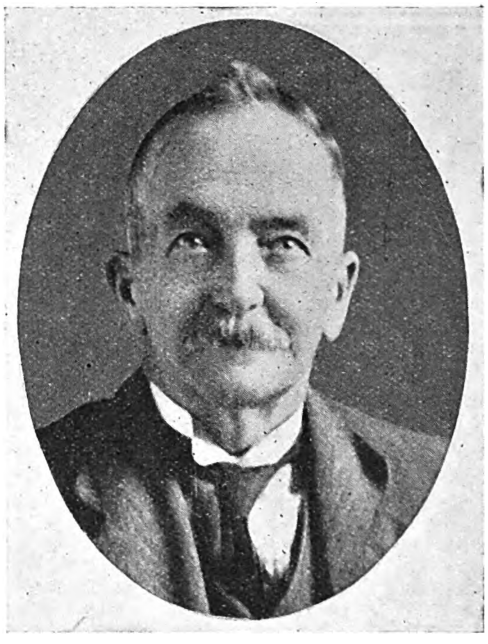
Captain F. Kingdon Ward.—After a trying experience in Indo-China—including a month's illness up country—Captain F. Kingdon Ward has returned safely from his short trip to the Far East. He reports that the weather was atrocious, and that illness among members of both the American expeditions that he arranged to meet, upset many plans.

John Cypher Memorial Fund.—The following amounts have been received for the Memorial to the late Mr. John Cypher, V.M.H., since the publication of the first list of subscribers:—Mr. R. Windsor Rickards, Usk Priory, Usk, Mon., £2 2s.; Mr. W. T. Mitchell, The Arboretum, Westonbirt, Tetbury, 10s. 6d.; Mr. H. J. Chapman, Mornington, Wylam-on-Tyne, £1 1s.; Mr. Edwin Beckett, V.M.H., Aldenham House Gardens, Elstree, £1 1s.; and Mr. A. J. Cobb, The University, Reading, £1 1s. Subscriptions to this fund should be sent to the Hon. Sec. and Treasurer, Mr. Charles H. Curtis, 5, Tavistock St., Covent Garden, London, W.C. 2.

Retirement of Mr. J. T. Butters, Port Elizabeth, South Africa.—We learn that owing to advancing years, Mr. J. T. Butters retired, at the end of June, from the position of Superintendent of Parks and Gardens, Port Elizabeth, South Africa. He held this position for forty years, and is being rewarded for his long and meritorious services by a pension which will enable him to live in comfort. During the time Mr. Butters had charge of the gardening and tree-planting, Port Elizabeth has been transformed from an almost treeless, desert-like place, to one of very considerable attractions. Plantations abound, and create a totally different impression to that gained by visitors who only know the sea-front. With but little soil and vicious winds during the spring and summer months, it was no easy task to find trees that would thrive under these adverse conditions. They were found, however, and the tree which most successfully withstands the local conditions is Pinus halepensis. A few species of Eucalyptus do moderately well, although they are apt to show dead top shoots after droughts and after being battered by the winds, or scorched by the saline spray. In sheltered places Harpephyllum caffrum does fairly well, but those places are very few indeed. In a suburb only about three miles away, sheltered by the hills, where the soil is generally of a sandy nature, Pinus insignis and a number of other trees do well, but they are mostly useless at the port. P. halepensis, when once established, is able to hold its own, and as groups and belts of it were planted thickly they now form a fine feature. At a farewell gathering, the Mayor, on behalf of the officials, made a presentation to Mr. Butters, and said that the parks were a feather in the cap of Mr. Butters and the envy of other places in South Africa. Mr. Butters had been a friend of all the sporting societies in the city in connection with the laying out of grounds for playing fields. The Town Clerk, in appreciation of Mr. Butters as a colleague, referred particularly to his magnificent work in improving the amenities of the golf course by means of tree planting. There, he said, the wind-swept veldt had been converted into a place of real beauty, and the woods were much admired by all who visited the links. In St. Georges, the headquarters of the Parks Department, Mr. Butters had got together a fine collection of shrubs, trees, succulent plants, etc.; recently a new nursery ground has been made where all the young trees and plants are raised. There is in this nursery a fine collection of Palms and other suitable subjects used for decorating. During the last two summers the task of carrying on the work has been very trying indeed, for the city has outgrown its water supply, and, to make matters worse in this respect, the usual rains have not fallen in the catchment areas of the reservoirs, consequently the use of water for gardens has been, and still is, strictly forbidden. But in spite of that, water was carted from a small stream a little distance away, and most of the trees and plants were kept alive. Mr. Butters retires full of years and of honour, his life's work well done.

Paper from Bamboo.—We learn from the Government Report issued by the Forest Research Institute at Dehra Dun, India, that Mr. W. Raitt, the officer in charge of the paper pulp section, has carried out some useful experiments in the manufacture of paper from Bamboo stems. At present the only areas which have been considered for the production of Bamboo stems for paper-making are those in Burma, which are estimated to produce 800,000 tons of pulp per annum, and the plantations are within three miles of a river which could be used for transporting the canes to the pulp-mill. Should the demand be sufficient to encourage the formation of improved methods of transport, much larger areas could be brought in. When timber forests are cut down for the use of the saw-mill or pulp-mill the land is cleared, and unless re-afforestation is systematically carried out, the supply from that area is gone for ever. Even with regular and systematic tree-planting, it takes many years for the trees to grow to a size to fit them for the pulp-mills. With Bamboo, however, the plant is practically indestructible, except by uprooting, or by seizing the opportunity afforded by seeding to uproot the young seedlings. After cutting, the plants commence growth again, and are ready for cutting in from five to seven years. In view of these facts, it would seem that Bamboo affords an inexhaustible supply of raw material suitable for paper-making. In the earlier stages, the experimenters were faced with what appeared, at the time, to be an insurmountable difficulty. One-fifth of the weight of the material consisted of a peculiarly malignant type of a chemical substance known as pectin, which in combination with the soda which was used to break down the fibre, formed a dark brown dye, which the pulp absorbed. This had to be got rid of at a later stage in the process by the use of an excessive quantity of bleach, which not only made the cost of the pulp almost prohibitive, but was very destructive of the fibre. It has been found, however, that the pectin is soluble in weak solutions of soda at a temperature not high enough to break down the material into fibre, and the pectin is now dissolved and run off before actual pulping takes place. As regards the cost, it is calculated that in spite of the great distance from Burma to this country, the Bamboo pulp could be brought here and sold at a price to compete successfully with Scandinavian wood-pulps of the same quality, and allow a good margin of profit to the pulp-mills in Burma.

Mr. Frederick Bright.—Mr. Frederick Bright was born in 1853, at Weston, near Bath, where his father was head gardener. He commenced his gardening career under Mr. W. Parsons, at Bittow Rectory, and eventually served his apprenticeship under Mr. Bartram, a famous Grape grower in his day, at Cyfarthfa Castle, Merthyr Tydvil, Glamorganshire. From there he went as journeyman-gardener to Mr. Worthington, Westbury-on-Trym, another famous fruit-grower and exhibitor. Later he obtained the post of indoor foreman under Mr. John Bushel, at Redland Court, Bristol, and in 1883 he was appointed head gardener to the late Mr. Preston Carslake, at Whiteknights Park, Reading, where he soon became famous as a plant and fruit grower. In 1899, Whiteknights Park was acquired by Jules Friedlander, Esq., and Mr. Bright continued in his service as gardener and estate manager, retiring in 1920, after thirty-seven years' service at Whiteknights Park. During his time there he trained many young men who to-day are holding responsible positions in the horticultural world. He has two sons and two daughters. His elder son is head gardener to Captain Philpot, Sandroyd House, Cobham, and is well known as a grower of specimen Chrysanthemums, and the younger son is head gardener to Major Disraeli, Hughenden Manor, High Wycombe, Bucks. Mr. Bright was a noted cultivator of specimen Fuchsias, for which he gained many awards, notably at Holland House, and later at the London International Exhibition in 1912, where he was awarded a Silver-gilt Medal and Diploma of Honour for a group of specimen Fuchsias; a Silver-gilt Medal for a group of Schizanthuses; and a similar award for a group of Mignonette in pots. He has raised many greenhouse and outdoor plants in his time. Many are in commerce to-day, such as Fuchsia Whiteknights Gem, and F. Pink Pearl, and a very fine bedding Pelargonium named Whiteknights Glory. He was successful in crossing the Clivia with the Hippeastrum, and the late firm of Messrs. James Veitch and Sons, Chelsea, acquired the whole stock of the resulting hybrids. Mr. Bright, who now lives at Westbrook, Shinfield, Reading, still takes a very keen interest in gardening, particularly in hardy fruits. On the east side of his house he has planted and trained a Peach tree, of the variety Dymond, which is a model of perfection, and covers a space of thirty feet by twelve feet. This year the tree is carrying some three hundred fruits, beautifully spaced out at about a foot distant from each other. Mr. and Mrs. Frederick Bright celebrated their golden wedding at Westbrook, on August 7, in the company of their family and a large number of friends. Mrs. Bright is the second daughter of the late Mr. James Lye, who was gardener at Clyffe Hall, Market Lavington, Wiltshire, and famous in the horticultural world for raising and introducing many grand Fuchsias.



MR. FREDERICK BRIGHT.

Mr. M. Audley F. Sutton.—The youngest partner in the firm of Messrs. Sutton and Sons, Reading—Mr. M. Audley F. Sutton, son of Mr. and Mrs. Martin Sutton, of Erleigh Park, Reading—was married a few days ago to Miss Joan Lehmann, daughter of Mr. and Mrs. S. P. Lehmann, of Woodford Green. The wedding took place at St. Paul's Church, Portman Square, London, and was attended by a very large number of the members of the staff at Reading.

Small Holdings in the Island of Harris.—The Government has exercised its powers to acquire land compulsorily for small holdings, in the case of the deer forest of Luskentyre, in the Island of Harris. The Luskentyre estate is nearly 6,000 acres in extent, and is the property of the trustees of the late Lord Leverhulme.

Early Autumn Flowers in Regent's Park.—Despite the long-continued drought, the early autumn display of flowers in Regent's Park is equal to those earlier in the year, for the numerous beds and borders are now gay with Dahlias, Chrysanthemums, and other seasonal flowers. Upon entering the park by the Park Square entrance, the visitor is confronted by a magnificent bank of Dahlias, tastefully arranged, and every plant laden with blooms. Every type of Dahlia is represented, and the number of varieties must run into three figures, while the edging of the bed is of numerous Single and Mignon sorts. The display of Dahlias at the Clarence Gate is almost equally as grand. The beds along the main avenue are planted chiefly with Chrysanthemums, the leading sorts employed being Madame Marie Massée, Elstob Yellow, Pluie d'Argent, Crimson Polly, Ralph Curtis, Golden Diana, Major Robertson and Mrs. Pearson. Among Dahlias used in the bedding schemes are the free-flowering, rich pink Rose Orleans; Prestige, over a groundwork of the dwarf bedding variety Averrood; and Bishop of Llandaff, a grand, vivid scarlet Paeony-flowered sort with dark foliage. The bed of Lobelia cardinalis is very striking, while another pleasing effect has been obtained with the floriferous Petunia Silver Lilac as a groundwork to standard Fuchsias. The long herbaceous border is looking very parched; in this, the dominant colour is yellow, and although, of course, this can hardly be avoided, the introduction of a few other colours would add considerably to the decorativeness of the border. However, the general effect of the floral schemes in Regent's Park is very fine and reflects great credit upon Mr. Campbell and his staff, who achieve so much under conditions which are far from congenial.

Mrs. A. Sherman Hoyt's Gift of Cacti to Kew.—Our readers will remember that Mrs. A. Sherman Hoyt, Pasadena, California, exhibited a wonderful collection of Cacti and other succulent plants at the Royal Horticultural Society's Chelsea Show. The exhibit was described and illustrated in *The Gardeners' Chronicle* of May 25 and June 1, 1929, while a portrait and appreciation of Mrs. A. Sherman Hoyt were given in our issue of May 25. The valuable collection, comprising about one-hundred-and-fifty plants, together with a large quantity of natural stone and sand, was transported from California to London with such success that not a single plant suffered injury. At the close of the Chelsea Show, Mrs. Hoyt most generously presented the collection to Kew, and, as stated in the current issue of the *Kew Bulletin* (No. 7, 1929), the plants are now installed in the Succulent House. A portion of the bed at the north end of the house has been cleared for their reception; and the native stone and sand have been utilised in giving the plants as natural a setting as possible. This arrangement preserves its general interest, and, at the same time, demonstrates its educational value. Among so many magnificent plants several are new additions to the Kew collection. The following are particularly noticeable on account of their size and grotesque appearance. Ferocactus Lecontei, Britton and Rose, is represented by three large specimens, each with a stem over three feet high and eighteen inches in diameter, covered with a thick network of stout spines of a reddish colour. In several smaller plants the spines are a brilliant red. Echinocactus polycephalus, Engelm. and Bigelow, of which there are several fine specimens, is remarkable in having from six to fifteen stems which spring from the same base. The stems are from fifteen to eighteen inches high and ten or twelve inches in diameter, and are covered with exceptionally stiff spines. Echinocereus Engelmannii, Rümpler, is a very distinct species with great numbers of long, straight, crowded spines which completely hide the stem and look like a stiff bottle-brush. Among the several plants of this species there are three distinct varieties, differing chiefly in the colour of their spines. The largest specimen consists of thirty stems and is over a yard wide. A very handsome plant is an unnamed Opuntia which may be O. strigil, Engelm., a rare plant in cultivation. It is four feet high and well branched, the joints being covered with numerous long, yellow spines. Another well-marked and pretty species is Opuntia Davisii, Engelm. and Bigelow, with slender joints and long, yellow spines. A very singular plant, which does not belong to the Cactus family, is Fouquieria splendens, Engelm. This shrub produces long, slender, prickly branches from the base which reach a height of eight feet. The bright red flowers are borne at the tips of the branches. It is reputed to make an effective and almost impenetrable hedge. Other genera are represented by several species of Cereus, Mammillaria, Agave and Yucca. This gift is greatly appreciated, and visitors to Kew have expressed the greatest interest in Mrs. Hoyt's unique collection of desert plants which she has so generously presented.

Legacies to Gardeners.—Dame Margaret Annie Knott (wife of Sir James Knott), of Close House, Wylam-on-Tyne, who died at Cannes on March 8, bequeathed to her gardener, Mr. William E. Anderson, a sum equivalent to five years' salary; five years' salary to Mr. Harry Thompson; two years' salary to Mr. W. Beattie; and one year's salary each to Mr. Jack Tait, Mr. R. Moffatt and Mr. Robert Trail—all under-gardeners; while Ada Jordan, the bothy caretaker, also received five years' salary. Mr. Calvery Bewick, the owner, has now returned to Close House, and has engaged Mr. Anderson as his gardener.

Sweet Peas for Garden Decoration.—The Floral Committee of the National Sweet Pea Society recommends the following twenty-four varieties of Sweet Peas for general garden cultivation:—Ascot, pale pink; Avalanche, white; Bonfire, bicolor; Charming, deep cerise; Corona, rose; Delightful, rose cerise; Elegance, blush-lilac; Grenadier, scarlet-cerise; Huntsman, scarlet; Ivory Picture, ivory; King Mauve, mauve; Magnet, deep cream-pink; Mrs. Arnold Hitchcock, pale cream-pink; Mrs. H. J. Wright, flushed, white ground; Olympia, purple; Picture, cream-pink; Pinkie, deep pink; Powerscourt, lilac-lavender; Reflection, blue; Sybil Henshaw, crimson; Tom Webster, medium blue; Warrior, maroon; Wembley, pale lavender; and Youth, picotee-edged.

Appointments for the Ensuing Week.—Monday, September 23: Harrogate and District Horticultural Association's meeting; National Chrysanthemum Society's Floral Committee's meeting. Tuesday, September 24: Post Office Savings Bank Horticultural Society's Exhibition; Royal West Renfrewshire Horticultural Society's meeting. Wednesday, September 25: Newcastle and District Horticultural Society's meeting. Saturday, September 28: Leigh-on-Sea Horticultural Society's Exhibition; Leeds Paxton Society's lecture.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Bursting of Trees in Frosty Weather.*—I have hitherto accounted for the bursting of large trees under the influence of excessive cold, by attributing it to the expansive force of the sap while undergoing congelation; but this theory seems now to be set aside by Professor de Vriese's explanation of the fact, according to which we are to suppose that the tree goes on feeding like Jack's giant, till it is obliged to slit itself open for ease, the cold not permitting the trunk to expand. Now, without disputing for a moment that the sap does circulate to some extent during winter, I am really not prepared to charge trees with such monstrous gluttony, especially in cold climates, where the phenomenon usually occurs. In the same countries rocks split as well as trees; are we to apply the same mode of reasoning to them? Again, the professor attributes the destruction of flower buds by cold to the evaporation of their juices by the wind; but how will this account for their destruction when, as often happens, the sun's heat has raised such a large amount of vapour during the day as at night to cover every flower and twig first with dew and then with hoar frost? Surely in this case there is more than sufficient moisture to counterbalance evaporation. Besides, how can the juices of the plant be dried up when the surface is covered with moisture? I confess it appears to be more in accordance with observation to say that vegetable life requires a certain amount of heat (varying according to species) to enable it to perform its functions. When our fingers or toes are frost-bitten and drop off, we do not attribute it to evaporation, but rather to suppose that they have lost the heat requisite for the circulation of the vital fluid, and in consequence have become mere dead matter, subject to the usual processes of decomposition, and the same explanation seems applicable to plants. I admit that this does not throw much light upon the actual mode in which cold operates upon plants; but it is probable that among its destructive effects the rupture of the sap vessels may hold a prominent place. Not having microscopically examined the tissues of frozen plants, I merely suggest the idea in the hope that some of your readers may be able, from personal observation, to confirm or negative the supposition. *R. E. E. Gard. Chron., September 23, 1854.*

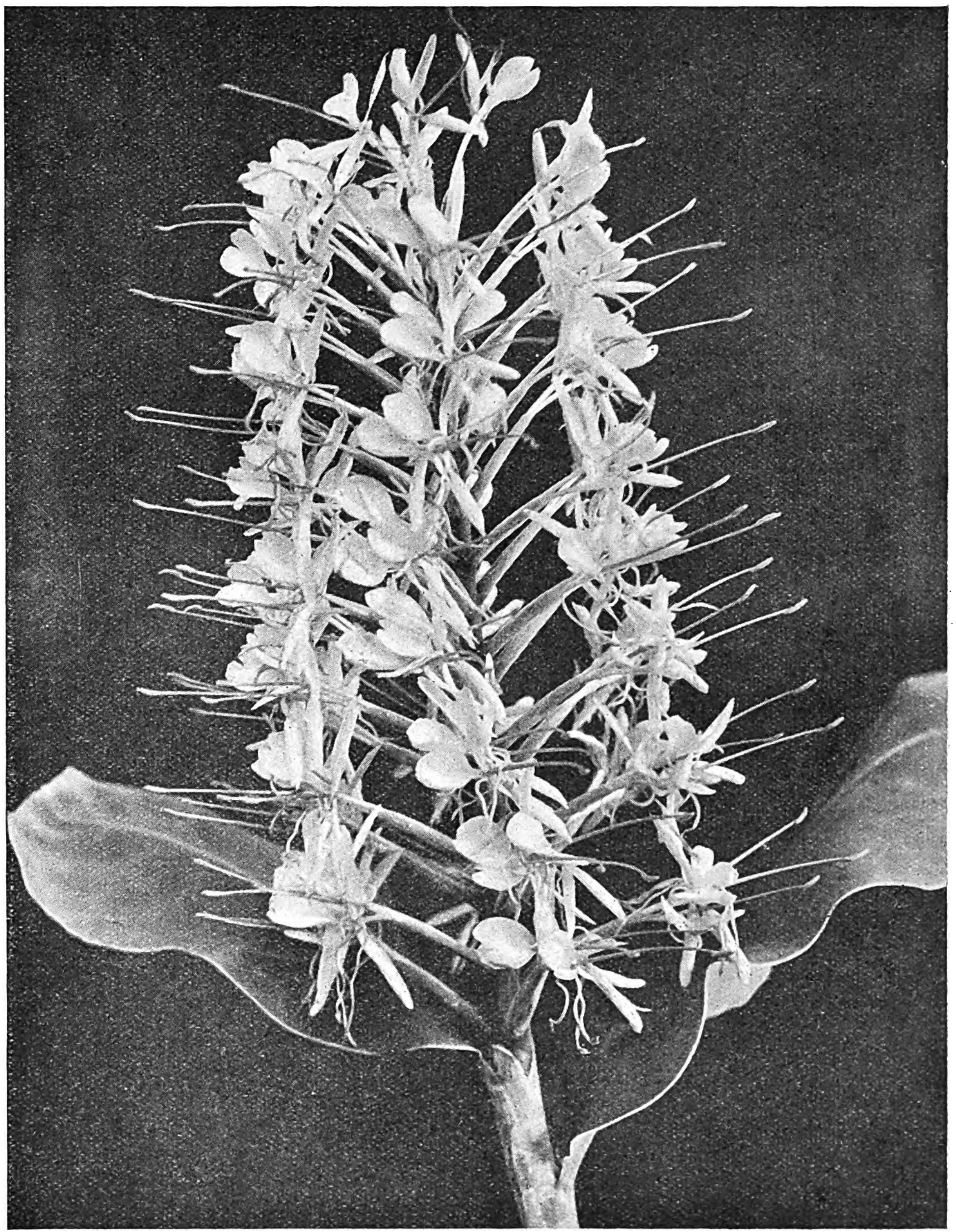


FIG. 107.—HEDYCHIUM GARDNERIANUM.
R.H.S. Award of Merit, August 27. Colour yellow, with red anthers. Shown by F. Kemp, Esq., Hayward's Heath. (see p. 174.)

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Dendrobiums.—Many of the earliest-flowering plants of the tender, semi-deciduous Dendrobiums are now completing their season's growth and are producing terminal leaves singly at the apices of the new pseudo-bulbs. As this stage is reached every encouragement should be given the plants to assist in ripening the growths in order to withstand the dark winter months and produce good flowers in the early spring. It is advisable to examine the specimens frequently, and those that are completing their growth should be placed in a position where more light and air can reach them, preferably at one end of the division where the plants are growing, so that slightly drier conditions may be maintained, although the plants should not suffer from dryness, as the roots are very active just now, and any check received through long periods of dryness will prevent them fully completing their growth, while new growths may appear prematurely from the base. During favourable weather the syringe should be used early in the day to prevent attacks of red spider, etc. As the pseudo-bulbs become well finished and ripened, water should be withheld gradually, and the plants may be removed to cooler and drier quarters and exposed to all available light, being given just sufficient water at long intervals to keep the roots in a healthy condition and prevent the pseudo-bulbs shrivelling. In early spring, when the flower buds are developing, a gradual increase of heat and moisture will be needed to assist in the full development of the flowers. As the growths are nearing completion, many varieties will require staking. Where there is ample room to winter the plants successfully, some species, such as D. Wardianum and D. Pierardii, bloom freely and show to the best advantage if allowed to keep their natural pendant habit. Small scale insects and red spider are often troublesome during the drier, ripening period, and should be removed by careful sponging with a reliable insecticide. Other Dendrobiums that are in various stages of growth should be given every encouragement, allowing so much sun-heat as possible to reach the plants without damage to the foliage, and maintaining a moist and buoyant atmosphere. The afternoon syringings should be lighter and a little earlier than last month, and enough air should be admitted to keep the atmosphere sweet, especially at night, when a little fire-heat may be necessary to maintain the required temperature with ventilation, and also prevent moisture condensing on the foliage, which conditions would quickly induce black spot on the foliage. Seedling Dendrobiums that are still in growth should be kept near the glass in the warmest house and encouraged to make as much growth as possible before the shorter days arrive.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Grease-banding Fruit Trees.—The practice of "banding" fruit trees for trapping the egg-laying Winter and Mottled Umber moths, is now fully recognised by gardeners, and, economically, is most essential in the case of tall garden pyramid and standard trees. But it is not quite so essential in the case of cordons, espaliers, and bush trees, owing to the very high egg-destroying properties of the various forms of tar-distillate washes now on the market. These tar-oils possess a remarkable degree of efficiency in the destruction of insect eggs. They are economical in price, and easy to apply to the trees during the first two months of the year. In the case of small bushes there is very little waste in application, as the spray can be controlled, and directed to any part of the tree. It is not so in the case of lofty trees, for there is always a large amount of waste, as the slightest wind will carry the spray with it, and the sheltered side of the tree is often insufficiently covered by the wash. But gardeners can, by grease-banding these trees, do much to eliminate the possibility of a bad infestation by caterpillars next spring, and provided these bands are kept in a "sticky" condition until the end of April, there is a good chance of destroying the egg-laying March moth, whose caterpillars are equally destructive to foliage, shoots and fruits, and also of catching many Apple-blossom weevils that are on the ascent at that period (March and April). All the insects mentioned are practically wingless (the Apple-blossom weevil excepted, but even so, it prefers to crawl), and are obliged to ascend the trees by crawling up the trunks in order to deposit their eggs near the tips of the branches. The caterpillars of these moths are by far the most destructive pests to fruits in this country, and as each moth is capable of laying some hundreds of eggs, the attack can be very greatly reduced by the use of grease bands. The best time to place the bands in position on the trees is towards the end of September or early in October, as it is at this period that the female moths commence their upward climb, migration going on sometimes until January. The greater number, however, is caught on the bands about the third week in November, but this may vary somewhat according to climatic conditions. Although this sticky composition may be applied to the trunks of aged trees without injuring them, with the very best results, it is preferable to use grease-proof paper bands on which to smear the grease, for the younger trees. Special paper can be obtained for the purpose. It is about five inches wide, and made up in rolls of fifty or one hundred yards each. These paper bands should be placed at a sufficient height (two to five feet) from the soil, to eliminate the risk of their being covered with grit during the winter. The ends should overlap a couple of inches or more to allow for shrinkage, and the bands should be securely tied with string at the top and bottom margins. The composition is then applied very thinly by means of a paddle-shaped piece of wood, choosing a dry, warm day for the operation, as then the composition will be thinner and more workable than on a cold day. A band of grease, a couple of inches or so in width, applied just under the top string is quite sufficient. The grease tends to thin out in warm weather after application. Examine the bands periodically, and should a skin form over the grease, although it should not, pass a toothed paddle-shaped piece of wood over the band, and so expose a fresh surface of the material.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Tritonias.—Tritonia Brilliant and other varieties are worthy of cultivation, especially where a cool-house only is available to produce flowers. The plants increase and flower freely and last in bloom over a longer period than most subjects. The corms should be potted now, placing eight to ten in a forty-eight-sized pot. They will thrive in almost any open soil with coarse grit added. After potting, grow them in a cold frame from which frost is excluded, until such time as their flower spikes appear, when they may be removed to a cool greenhouse for flowering.

Cinerarias.—These plants will now be in various stages of growth and will need attention as regards potting. To obtain sturdy growth, the potting compost for those that are to be placed in their flowering receptacles should consist chiefly of loam, with some grit added to ensure a free passage of water. For those that are to be pricked off into boxes or potted up into small sixty-sized pots, some leaf-mould should be added to the compost. Cinerarias enjoy cool, moist conditions, with an abundance of air, in which to grow; it is a mistake to coddle them at any stage of growth, and the house in which they are grown should be fumigated at intervals or the plants sprayed with an insecticide to keep green fly in check.

Calceolarias.—Plants of herbaceous Calceolarias raised from seeds sown last month should now be ready for transference into small pots. Use a rich, open compost for this potting. Good, open loam, with some dried cow manure or old Mushroom-bed manure and grit added, should form a suitable compost. The plants should be grown under the coolest possible conditions, and they will thrive best where they can be stood on moist ashes, preferably in a cold frame. Young plants of Calceolaria Clibranii may now be potted on; they should make fine specimens for the conservatory next year.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Strawberries in Pots.—Since the Strawberry runners were detached from the parent plants the weather has favoured the application of liberal supplies of water, and those who have watched and noted results know quite well that the best and ripest crowns are secured when bright weather necessitates frequent watering. The earliest potted plants will now be slackening growth and the crowns will be getting plump, but they are not ripe yet and should not be hurried into maturity, as checks from this cause mean loss of tender roots before the beginning of winter. Mild feeding may still be carried out as cutting off the food supplies before growth ceases is a step in the wrong direction. Later, when these plants have filled their pots with healthy roots, they should be plunged in some moisture-preserving material in a light, open pit where water may be given them regularly. Later plants, possibly in larger pots, will make rapid growth for some time to come, and ripe roots being as important as ripe crowns they should be moved occasionally and set a greater distance apart to admit light and fresh air freely among them. Remove all runners, weeds and weak secondary crowns, and give a little weak soot water or liquid manure twice a week.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

The Rock Garden.—The season has arrived when many of the smaller bulbous plants should be planted freely on the rock garden, for they make charming pictures during the early months of spring, if associated with such carpeting plants as Aubrietias, alpine Phloxes and the dwarfer of the mossy Saxifrages. Among the earliest to bloom is Chionodoxa Luciliae, which, with its bright blue, white-eyed flowers, is equally effective naturalised on mossy banks or in sheltered nooks in the rock garden. The Winter Aconite is also welcome during the dull days of early spring, with its golden-yellow blooms. These and the early-flowering Crocuses should be planted at the earliest possible moment to ensure good results the first season. Alpine plants worth noting for continuing the flower display so long as possible into the autumn are the four late Gentians, namely:—Gentiana sino-ornata, G. Farreri, G. asclepiadea and G. septemfida. No plant of this glorious family is so easy to grow or to propagate as the first-named. It soon forms large tufts which are covered during September with erect trumpets of dark blue. It loves cool, rich soil at the base of the rock garden. It is easily propagated by cuttings or division; on examination of the old plants it will be found that most of the young shoots have a plentiful supply of roots attached to them. Incidentally, the blooms last well in water as cut flowers and the shoots will eventually emit roots as the blooms fade. This plant seems to be at home all over the country. G. Farreri also blooms during September, and is the glory of the garden with its Cambridge-blue, white-throated flowers. It is much more difficult to grow in the south than the former species, but is well worth special preparation as regards choice of site and compost. It requires abundant moisture at the roots, but without stagnation. As seen in the north, it is such a glorious plant that all should attempt to find a place congenial to it. G. asclepiadea, commonly known as the Willow Gentian, is also a welcome plant during late August and September for the larger rock garden. Growing from two to three feet high, the arching shoots wreathed with beautiful blue trumpets, are most attractive at this season. It loves a cool, moist position, and is not particular in the matter of soil. G. septemfida and its varieties are accommodating plants, perfectly hardy and easily grown in a moderately moist position in peat and loam.

THE KITCHEN GARDEN.

By W. G. STAWARD, Gardener to LADY MARGARET RYDER, Knowle Gardens, Dunster, Somerset.

Carrots.—Where the main crop is showing signs of maturing, lifting may be proceeded with at once, for should a rainy period set in the roots will crack and so be rendered useless for storing. The late roots will be all right for a few weeks yet. Late-sown plants should be thinned; dust plenty of soot around the roots and hoe it in.

Celery.—Continue to earth-up Celery as growth advances. Keep the stalks firm, and work plenty of soil tightly around the plants, but see that no soil is allowed to collect in the centres of the plants. Keep the batches well supplied with water while they are growing freely.

Potatos.—The main crop and late varieties may be lifted as the haulm dies down, as no good purpose will be served by leaving them in the ground. Select a dry day for the work, and allow the Potatos to remain upon the ground to dry for a few hours before collecting them for storing. Grade the tubers as they are lifted. The "seed" tubers should be placed in the open, in the sun, to green them. Turn them once or twice before removing them to the store-room and be sure to label each variety.

Celeriac.—This crop is now growing fast and should be afforded plenty of water at the roots. Soakings with liquid manure should be beneficial; keep the rows free from weeds by hand weeding and with the Dutch hoe.

Vegetable Marrows.—As Marrows attain a fair size and the skins become hard, they should be cut and placed in the store room in which they should keep for a considerable time if ripened, provided the store is dry and airy.

FOR NORTHERN GARDENERS.

By JOHN HILL, Gardener to ANDREW ARTHUR, Esq. Rosemount, Monkton, Ayrshire.

Violets.—These should now be transferred to the frames in which they are to flower. Although they prefer a shady, cool place during the summer, the opposite conditions are required now. The sunniest position possible should be chosen, in well-drained soil, which should be raised to allow the plants to just clear the glass when planted. If the soil is good, the addition of some leaf-soil and sand may be all that is wanted, but no heavy retentive mixture will grow Violets in winter. Lift the plants with great care, retaining large balls of soil, by cutting with the spade on the four sides to the full depth of the roots. Remove any decaying leaves and plant so deeply that the collar of each plant is underground, but the crown exposed, so that roots may be emitted from the whole stock. After planting, a thorough watering should be given and the frames kept closed and matted during the day until growth is re-established which, with ordinary care, should be in a week's time. Thereafter, gradually increase the air supply and, so soon as the plants show no signs of flagging, remove the lights on every favourable day. The lights may be put on during heavy, cold rains, but never closed, even in fairly hard frost a little air should be admitted at the back, with plenty of mats for protection. The distance at which to plant must be regulated by the size and variety; they should not touch or damping-off is sure to take place.

Planting Bulbs, etc.—May-flowering and other Tulips, Spanish and English Irises, St. Brigid Anemones, etc., should now be planted. The soil for these should not be heavily dressed with fresh manure, but should, at the same time, be in good heart and of fine tilth. After thoroughly working the soil, drills four or five inches deep should be made with the spade, in which the bulbs or corms may be placed, surrounding them with a little rough sand if the soil is retentive. Press the bulbs gently into the soil but leave the earth free above; it will become solid enough before spring. If annual lifting is practised, these subjects may be planted fairly closely together—two or three inches apart for Irises and Tulips, and the same or rather more for Anemones, according to the size of the tubers. Being hardy, no protection should be given, even although they appear above ground before winter.

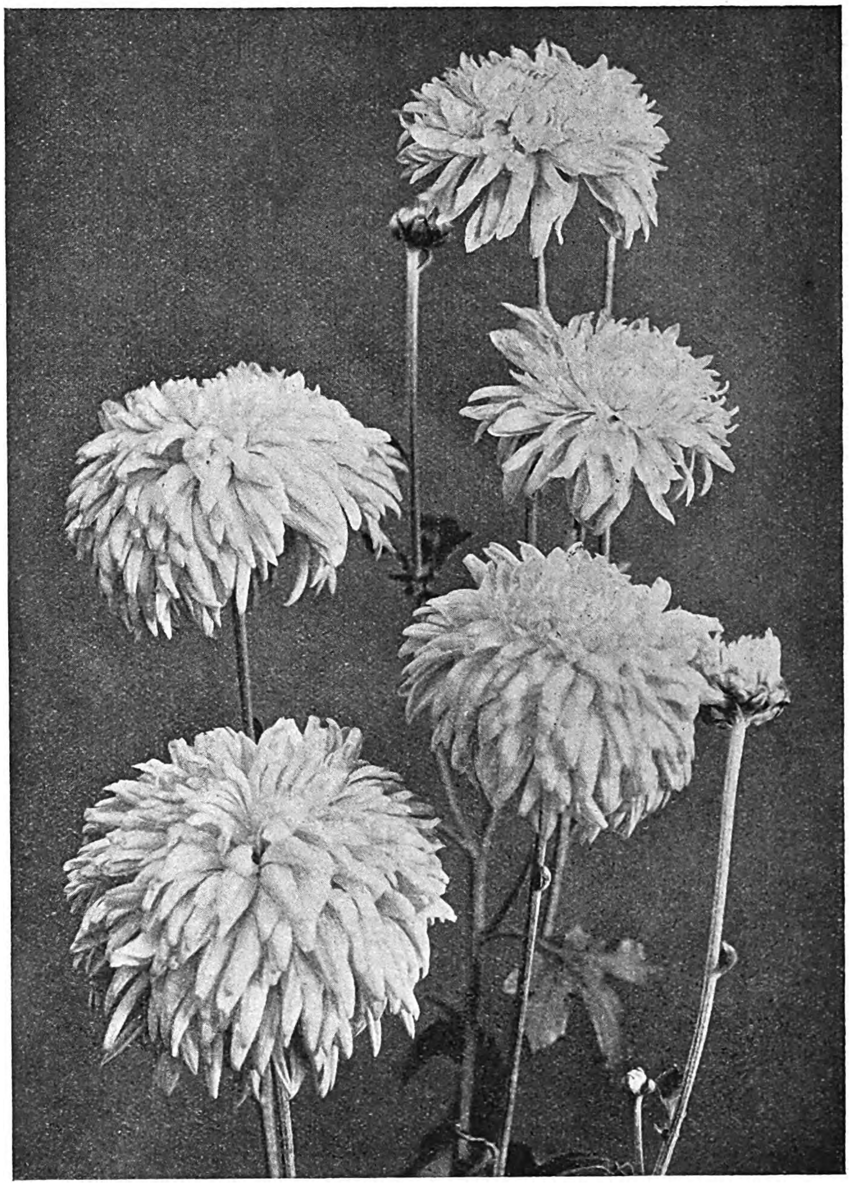


FIG. 108.—CHRYSANTHEMUM KINGCUP.

N.C.S. First-class Certificate, September 9. Flowers yellow. Shown by Mr. W. Shoesmith, Junr.

(see p. 235.)

Rambler Roses.—An early opportunity should be taken to overhaul these. In most cases all the flowered wood should be cut clean away at the base and the newly made growths tied into position; the extra light and air so afforded will help to ripen them and ensure their passing unharmed through the winter. In cases where growth is insufficient to permit of this, one or two of the previous season's growths may be retained, but all flowered or weak portions cut away. Liberal supplies of farmyard manure should be spread around them and pointed in now, or later, as may be most convenient. If red spider or aphis are present, steps should be taken to thoroughly cleanse the retained growths; for mildew or black spot, spray with lime-sulphur.

Housing Plants.—Arrangements should be made for housing all plants at present finishing their growth in the open or in cold frames. As the days shorten, damping is apt to set in among Cyclamens, Primulas, Cinerarias and similar subjects, therefore a cool house should be afforded them, placing them close to the glass. Young plants of perpetual-flowering Carnations should now be housed and staked where necessary. If the pots are well filled with roots a pinch of Carnation manure may still be given, but the application should not be repeated during the dull winter months. From now until spring, water should be given with great care and at no time should saturation be allowed. Red spider, the worst pest of Carnations, should be dealt with so soon as noticed.

Show and Regal Pelargoniums.—Cuttings of these should be rooted in boxes of light, sandy soil, in a close frame, after which the plants to be retained should be pruned back to within a few inches of the bases of the current season's growths, and the plants placed in a close frame. Withhold water from the roots entirely, but syringe them once or twice a day during bright weather.

INDOOR PLANTS.

HIDALGOA WERCKLEI.

This fine climbing plant from Central America has never achieved a great measure of popularity and yet, at the time of its introduction, it appeared to have a great future; known as the Climbing Dahlia, possibly because of the resemblance which its flowers bear to those of the popular single forms of the Dahlia, H. Wercklei is a quick-growing greenhouse herbaceous climber, attaining twenty feet or more. Its flowers are bright scarlet above, yellow beneath, and while they certainly recall those of Dahlias, they lack the symmetry and regularity of outline inseparable from those flowers. The leaves are much divided and very elegant, and the plant climbs by means of long, twining petioles.

The plant is fibrous-rooted and thrives in a light, well-drained soil; it is effective and valuable in the cool greenhouse, and plants secured by early propagation should prove of service in the summer flower garden, for the growth is rapid and the plant is exceedingly free-flowering, its floriferousness ceasing only with the advent of short days and cold weather. A few plants placed in a sheltered position, the foot of a warm wall for preference, should render a good account of themselves; the plant is easily propagated from cuttings.

H. Wercklei, which belongs to the Natural Order Compositae and is closely allied to Dahlia and Coreopsis, was discovered in Costa Rica, in the uplands of that country, by Mr. Carlo Werckle, in 1898, and shortly afterwards a specimen flowered at Kew, where it created a favourable impression.

TACCA CRISTATA.

This singular plant, which is sometimes described under the name of Ataccia cristata, is seldom grown, but occasionally, at Chelsea and elsewhere, it is a centre of interest by reason of its remarkable appearance. The thick and coarse root-fibres proceed from a stout and short root-stock, and from this root-stock issue the five or six leaves, with smooth petioles but a few inches in length; the oblong-acuminate blade is dark green and prominently veined, and in a vigorous plant may be some eighteen inches long. The scape rises above the leaves, erect and smooth, and terminated by a prominent, four-leaved, membraneous involucre, the two outer leaflets opposite, the two inner placed side by side, erect, large, semi-transparent, and of chocolate colouring. The peduncles are numerous, each bearing a solitary flower, the whole forming a drooping umbel; in addition to the floral peduncles a number of sterile ones are produced, long, pendulous and of tendril-like form, chocolate, or a shade of brown approaching to it, being the prevailing colour of the whole.

Indigenous to Malacca, this weird, almost insect-like plant is found growing in moist situations, so that heat and moisture are very necessary to it when under cultivation; a stagnant or saturated condition of the compost is, however, fatal to its well-being. A suitable compost is formed of fibrous-peat or Osmund fibre shredded rather finely, small, broken crocks and sharp sand. Light shade should be provided during the summer, and a moist atmosphere maintained by the free use of the syringe; during winter, the supply of water will require modification, but the compost should never be allowed to become really dry. The flower-scapes are usually produced in spring, but will occasionally appear at other seasons of the year.

Propagation of this quaint plant is effected by separation of the side-growths which are produced from the main stem; the plant is not, however, unduly prolific of these shoots.

T. cristata was introduced from the Malaya in 1812; it is figured in *Bot. Mag.*, t. 4,589, under the name of Ataccia cristata. Some growers incorporate a little loam in their compost for this plant, but it appears happier in peat or fibre. *Ralph E. Arnold.*

HARDY FERNERY.

CHEILANTHES GRACILLIMA.

The genus Cheilanthes belongs to the family Polypodiaceae. It contains over one hundred species, mostly xerophytic, which inhabit the Tropics, and the northern and southern Temperate Zones. It is allied to Adiantum, Gymnogramma, Pteris, and the ubiquitous Bracken (Pteridium aquilinum). Cheilanthes gracillima itself is a native of north-western United States, and California, where it grows in fibrous, gritty soil among rocks at about 12,000 feet above sea-level. It was first recorded in 1859.

It forms small rosettes or hummocks surmounted by almost triangular, bipinnate fronds, one to four inches long, borne on shining, dark brown stalks, which are approximately of the same length. The pinnules are small, dark green and coriaceous; when first unfolded they are covered with greyish down.

In common with many xerophytes, the leaf margins are recurved so strongly that they almost meet in the middle line beneath. The groove thus formed is filled with a soft, fulvous pubescence. This is to protect the stomata—which are chiefly on the under-surface—from over-rapid transpiration in the drought which xerophytes have to endure. The same character may be noticed in Empetraceae, Ericaceae, Rosmarinus, etc.

This little Fern is quite hardy, and is stated to withstand so much as 60° of frost, with a snow covering. It is an especially suitable plant for the rock garden, where its dainty rosettes will line the crevices of a bold rock-face in full sun, amply accounting for the well-earned name of Lace Fern. *Graham S. Thomas, University Botanic Garden, Cambridge.*

HARDY FLOWER BORDER.

EUPATORIUM PURPUREUM.

Joe Pye Weed is the vernacular name for this species throughout its native habitat—North America. It is a rather coarse-growing plant, sometimes attaining a height of eight or nine feet, and is usually found on low ground or in woods or thickets. The large, flat-topped inflorescences, purplish-pink in hue, make bold splashes of colour on the early fall landscape, and contrast charmingly with the bright yellows of the Solidagos, which grow in profusion in association with it.

While not refined enough in appearance to merit a position in the small herbaceous border, it is a valuable subject for massing against shrubs in the wild garden, or for planting near the waterside. It might also be used with due discrimination in a large herbaceous border. The simple stems bear oblong-ovate or lanceolate leaves, in whorls of from three to six. The leaves are thin in texture, smoothish, and rather finely crenate-dentate.

Eupatorium purpureum is naturally variable and several distinct varieties have been described. According to Gray, variety maculatum is "more pubescent, with thicker and more rugose-ovate to ovate-oblong incisely and coarsely toothed leaves and flattish-topped cymose panicles of more crowded rose-purple or paler heads." It usually occurs in wetter places. Variety amoenum is "low; leaves fewer, often opposite, ovate or oblong, heads few"; variety foliosum "leaves thin, elongate, the upper much overtopping the compact flat-topped inflorescence"; and variety augustifolium, "seems to be only a weak form or state" of the type plant. *T. H. E.*

CLEMATIS INTEGRIFOLIA.

In 1596, this plant was brought into cultivation from eastern Europe. Unfortunately, although having had a long period in which to become widely grown, and in spite of being a plant of unusual beauty, long-flowering period, and easy culture, it is still uncommon—a fact perhaps traceable to the rather slow facilities of its propagation, of which seeds afford the best method. It resents disturbance and division. In common with other Clematids, it has no true petals, their place being taken by coloured sepals (as in Caltha, and other members of Ranunculaceae, to which family the subject of this note also belongs), and the flowers contain no honey.

This Clematis is a herbaceous plant, forming a clump of rigid, softly pubescent stems about two feet in height, most of which, on a well-grown plant, will bear flowers. The leaves are smooth, oppositely disposed, entire, ovate-lanceolate, and of rather dull green, about three inches long and half as wide. The upper pair of leaves is concave and encloses the terminal bud in its younger stages. From this last pair of leaves the stem proceeds for six inches or so, then arches gracefully, bearing a long, pointed, pubescent bud, which unfolds in due course and becomes a great nodding, four-sepalled flower of softest bluish-violet, with a cluster of pale cream stamens to enhance its beauty. When the flower first opens, the margins of the deeply-veined, coriaceous sepals, which are from two to three inches long, are edged with short, white pubescence; this, later on, disappears, and the margins become wavy. Also, the sepals twist with age, giving a delightful effect reminiscent of the similar, although considerably smaller, flowers of the climbing C. Viticella. Besides the terminal flower there are two or more flowers which develop later, completing the inflorescence—a cyme—and prolonging the flowering period from June to the end of August.

The fruit is a group of achenes, upon which remain the styles; they become silky-haired, and curl over with an elegant, mop-head effect. This both gives greater beauty and tends to secure wider seed distribution.

Of varieties there are few; one with pinnate leaves—merely a curiosity—and one with larger flowers.

In cultivation, this beautiful Clematis is easy; all that it requires is a good, deep, loam, and not too hot an exposure. It is equally effective for the front of borders or for the back of the rock garden. It also gives continued pleasure if a bed is devoted solely to it. *G. S. T.*

BULB GARDEN.

NARCISSUS MINOR.

There are signs that the use of bulbous plants in the rock garden is becoming much more general, and the special value of early flowers of this class is being more and more recognised. Among the most pleasing and attractive of these are the miniature Daffodils, which really call for a position in the rock garden to enable them to reveal their beauty to the utmost. In a recent issue of the *Journal* of the Royal Horticultural Society there was published a valuable paper by Mr. P. R. Barr, in which he discussed the smaller Narcissi suitable for rockwork. In this the value of Narcissus minor was referred to along with others, and in my rock garden this species always forms a delightful little group. This Daffodil is rather difficult to obtain true, as is the true N. nanus, which is even smaller than N. minor, and comes in between it and N. minimus.

N. minor is exceedingly beautiful in its own way. The general form is that of N. maximus. It is only about six inches in height, and has flowers of a fine yellow, the trumpet being prettily flanged at the mouth and the perianth twisted in a most charming way. This Daffodil is exceedingly attractive also when grown in pots or pans for the alpine house. Unfortunately, the true N. minor is now scarce, and its price puts it beyond the reach of a good many for planting the large groups in which it looks best, but a seedling from it is in commerce and is very little more than a fifth of the price, while it comes so near the true N. minor that it will satisfy many, especially as it is very beautiful and can withstand comparison with its parent, N. minor. There are, however, a few differences. It is slightly taller, and the perianth is less elegantly twisted, although the trumpet is nicely flanged. The flowers are also rather lighter in colour. It has no name that I am aware of, but that of N. minor seedling.

These two miniature Daffodils flourish in the ordinary soil afforded to rock plants in general, and are much the better for being carpeted by some dwarf plant, such as Veronica repens. A plant not usually frequented by slugs is desirable, as these pests may injure the flowers and deface their beauty. *S. Arnott.*

ALPINE GARDEN.

GYPSOPHILA REPENS.

THE genus Gypsophila has given us several plants which are now indispensable for the rock garden, and among these is Gypsophila repens (Fig. 109), a low-growing, mat-forming and practically indestructible plant. It is ideal for draping rocks and is, therefore, extremely useful for furnishing rock walls.

Gypsophila repens is common throughout the Alps. It forms a close mat or mound—according to its position—of interlacing, slender growths, clothed with glaucous, narrow foliage, and throughout the summer maintains a steady profusion of delicate sprays of blossom, white in the type but ranging to rose-coloured, this latter sometimes being given varietal rank—G. repens var. rosea.

There is also a monstrous variety of this dainty carpet plant, *i.e.*, G. repens var. monstrosa, which is much coarser in growth and produces masses of large sprays of white blooms one foot or more high; it is a hybrid of G. repens and G. Stevenii, and is well worth securing.

No trouble should be experienced in the culture of these Gypsophilas, as they are easily increased. *F.*

DEINANTHE COERULEA.

A NATIVE of China, this very beautiful member of the family Saxifragaceae is a most desirable plant. It has proved to be perfectly hardy at Cambridge, surviving the severe weather of last winter without protective covering.

It is herbaceous, and has a stout, horizontal root-stock; the leaves, four in number, are opposite and form a whorl-like cluster at the top of foot-high stems, and have reddish-pink petioles an inch or more long. The broadly-ovate or elliptic leaves measure six or more inches long by four-and-a-half inches wide, are rugose and strigose, with the margins coarsely serrate.

The blooms, produced during July and August, are borne in terminal panicles rising above the foliage on two-inch-long peduncles, carrying from four to seven charming, nodding, blue flowers, having numerous stamens of the same colour, each flower being an inch-and-a-half across. Both fertile and sterile flowers are produced; the sterile are not so numerous, are only half-an-inch across, and spring singly from the pedicels of fertile flowers; these are also blue in colour, fading to a greenish hue with age. This species flowered for the first time in England in 1909.

Deinanthe coerulea does well in this garden in a somewhat moist and shady part of the rock garden. *J. Blades, University Botanic Garden, Cambridge.*

HIERACIUM BOMBYCINUM.

THE Hawkweeds do not enjoy a reputation so exempt from ill-fame that one would admit them to the garden without suspicion. But the subject of this note is a plant of such charm and of a habit so pleasing that Mr. Ingwersen, who persuaded me to try it, was prepared to stake his good name on its quality and behaviour.

H. bombycinum is a Spanish species with grey-green, spoon-shaped leaves three or four inches long, and covered on both sides with silvery hairs. This woolliness suggested trouble in our humid winters, but H. bombycinum has come through not only excessively wet seasons but proved itself capable of resisting 30° of frost. The leafy tuft is not more than three or four inches in height and the plant, unlike so many of its kind, grows in a firm, compact clump. The flowers, borne on very silky, branching stalks some eight inches tall, are about as large as a florin, and of a particularly bright yellow which goes remarkably well with the silvery foliage. A succession of these cheerful blooms is maintained throughout the later spring and early summer. Seeds are produced abundantly, and the large, round "clocks" of iridescent down which accompany the ripening stage are distinctly ornamental. These, moreover, are so resistant to wind and weather that one may forget about them for a week and still find them intact, conveniently awaiting the seed envelope. H. bombycinum is a lover of sun, and I have yet to find a place too hot and dry for it. It is one of the few plants here which have thoroughly enjoyed one of the driest and most trying seasons we have had for many years. *N. Wales.*

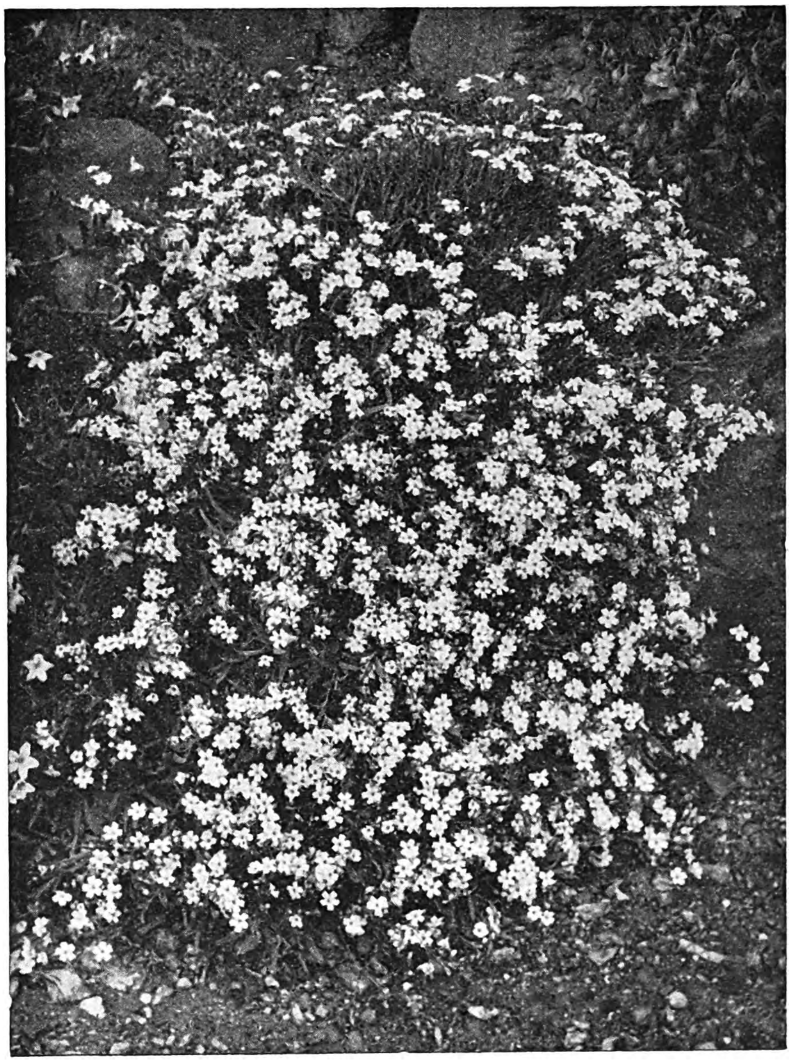


FIG. 109.—GYPSOPHILA REPENS.

TREES AND SHRUBS.

CISTUS RECOGNITUS.

ACCORDING to the Kew *Hand List* and other authorities, the legitimate owner of the above name is a C. laurifolius × C. monspeliensis hybrid which is also known as C. glaucus. I cannot recall ever having seen this plant, but Mr. Bean tells us (*Trees and Shrubs Hardy in the British Isles*) that it closely resembles C. Loretii but for its broader leaves and unspotted flowers. The C. recognitus of gardens with which I am dealing here is a very different shrub, and one of such superlative merit that there seems more than a probability of its retaining the name it bears for an indefinite period. At any rate, it is likely to do so until it is given another. What this C. recognitus is, and whence it came, still appear to be unsolved problems. That it is close to C. Loretii (a C. ladaniferus × C. monspeliensis hybrid) will be conceded by all who know it, and it may possibly have had a similar origin. But it is, nevertheless, so distinct that no grower of Cistuses could even confuse it with C. Loretii, or, for that matter, with any other Cistus in cultivation.

C. recognitus, to use its adopted name, differs from C. Loretii in growing nearly twice as tall and having a stiffer, more woody habit. Its lance-shaped leaves are narrower, more pointed and more deeply waved at the edges than those of the better-known hybrid. They are also much more gummy, and during mild, moist weather, especially in spring and autumn, emit a most delicious aromatic fragrance suggesting "Lemon Verbena," a scent which I have not detected in any other Cistus. These leaves are a light rich green with pale undersides, and they are practically hairless. The well-rounded flowers, which are borne in amazing profusion, are nearly three inches across and pure white, with a rose-carmine blotch at the base of each broad, overlapping petal. This blotch is rather smaller than that of C. Loretii, but it is of a keener, more vivid hue than that of the other shrub, the pencilling is more marked, and the zone of yellow which surrounds the stamens is broad and unusually conspicuous.

C. recognitus was among the few Cistuses which survived last winter here, which means that it is one of the hardiest of its race. I find it, moreover, one of the most adaptable and easy. It can be propagated from cuttings without the slightest difficulty, and is such a fast grower that one may often have cuttings flowering in their second year. These will be fully-grown shrubs in about four seasons, and the only trouble likely to occur with them is the possibility of their dying or being rendered useless by over-flowering. I should have no hesitation in giving this Cistus a place among the "best six" Rock Roses for general garden culture. *A. T. J.*

CEANOTHUS BURKWOODII.

THIS remarkable introduction will afford all those who delight in its charming race a thrill of fresh interest, since it gives us a Ceanothus which is entirely new in nature and appearance.

Those specialists in hybridisation, Messrs. Burkwood and Skipwith, of Kingston-on-Thames, who have added the creation of this shrub to their other achievements, do not divulge its origin, but one may conclude that the plant is the result of crossing an evergreen Ceanothus with one of the later flowering deciduous species. At any rate, we have in this hybrid an evergreen Ceanothus which, while it has all the beauty and fascination of the spring flowering species, flowers through the late summer and right on into autumn. That in itself bears its own significance, but C. Burkwoodii goes further, inasmuch as its panicles of blossom are considerably larger than those of most of the evergreen species, and in colour they are a rich indigo-blue. The ovate, sharply-toothed, alternate leaves are about an inch long. They are a rich, glossy green and smooth on the upper side, the under parts being silvered with a fine down. Although my specimen of this excellent novelty is only some two to three feet tall, it has flowered abundantly. Last winter it withstood 32° of frost without protection, and from this I am inclined to think that it will prove hardier than most of the evergreen species. *J.*

SOME ROCK GARDEN VIOLAS.

THE time being ripe for the planting of rock garden Violas, mention of one or two well-tried favourites may be useful reading to some. Perhaps V. calcarata might be accorded a foremost place in a small selection containing nothing very rare or difficult, for in any good form it is a most desirable plant. No Viola species of my acquaintance, save, perhaps, V. cornuta, flowers so profusely over so long a period as this Alpine Pansy. That it is not always as tractable as a "Maggie Mott" one readily admits, but, after all, that uncertainty which, so one may presume, accounts for its comparative rarity in gardens, flavours its culture with a wholesome spice of interest. What V. calcarata needs in the way of treatment I dare not suggest, but it is an all-season flower here under conditions which provide anything but the rich soil and abundance of water recommended by Farrer. The heartiest plants I have ever had have occupied a bed of poor, dry, sharply-drained loam, mostly stones and grit.

Another singularly prolific flowering Viola is V. cucullata var. alba. This does very much better here than the type, making big, lusty clumps of its downy, heart-shaped leaves and producing for several months in spring and early summer an amazing crop of blossoms. These flowers are usually well over half-an-inch across, of good shape and texture and a firm creamy-white. This plant will seed true to colour, and it is of the easiest culture in any fairly cool, partly-shaded corner. Under similar conditions, giving it the consideration its small size and extreme daintiness deserve, V. biflora will always prosper satisfactorily. This charming little plant, a true alpine, is indeed a subject for associating with the choicest gems of the rock garden. Its pale-green, kidney-shaped leaves are comparatively few and occupy but little space, for it spreads but slowly, and its twin flowers are so tiny that a close-up position is essential if their charms are to be fully appreciated. These blossoms are a rich butter-yellow, clearly rayed with dark lines, and the whole plant seldom exceeds three inches in height.

Many of the V. gracilis section (pretty mongrels some of them) are so wanting in quality that they would probably not survive a season but for the borrowed radiance shed upon them by the name of the species. Even so, it does not do to be too exacting over these until one is fairly satisfied as to what the type should be like, and on that point opinions differ widely. Rightly or wrongly, I cling to the faith that a small, rather frail plant, with leaves almost grass-like in their narrowness, is the genuine Slender Pansy of Macedonia and Asia Minor. This shy little thing has reduced its deep violet petals to mere strips, and these have accentuated the sylph-like grace of the flower by indulging in Cyclamen "tweaks" of the rarest refinement. At the other end of the scale is a plant called V. gracilis var. major. I believe this came here from the generous owner of Aldenham House, and it is one which, while it retains the true "gracilis" character, bears flowers of such large size that they could not possibly be mistaken for those of any other form. A really typical white V. gracilis has yet to be introduced. It seems odd that we have not already had it, but the lucky discoverer of such a plant will certainly enjoy a great reward.

For our own V. lutea I have an affection that will not be shaken by the appeals of any other rock garden Viola. A rich yellow, brown-rayed form found, not in the limestone which yields the tri-coloured Mountain Pansies, but on our western granite, is especially delightful. Although it threads its long, slender runners through the dense grass of upland moors, this little charmer will, under cultivation, make a tidy, self-contained pad of its delicate green, and cover it for the greater part of summer with blossoms which have all the elegance of line and poise of V. gracilis itself. Sir Herbert Maxwell, writing in these columns recently, reminded us of the fact that many of our native plants, although they may seem unruly, straggling things in the tangle of the wild, prove to be most exemplary garden subjects. V. lutea is one of these and all the Alps do not yield a better rock garden Viola.

Those whose tastes lean towards fatter fare and yet desire to avoid the hybrid bedder, will find satisfaction in V. rothomagensis. This, the Rouen Violet, grows in a neat and restrained tuft, and yields all the season through a crowd of podgy, round-faced, lavender Pansies. In many gardens this amiable species will produce its own seedlings in quantity and with a remarkable regard for family traditions. V. canina var. clatior which, writing from memory, is a discovery of Mr. Clarence Elliott's, is a good plant for a shady corner. At any rate, it has always been grown in this garden in a cool, sunless place among dwarf Ferns and kindred things. There it raises its twelve-inch stems and displays the pale, cold purity of its luminous bluish-lavender blossoms to better advantage than in a fuller light. Similar treatment, with, perhaps, a little more sun, also suits that mysterious little treasure, the St. Helena Violet, the delicacy of whose colouring equals that of the gentle Bog Violet (V. palustris). This old but always uncommon Violet is, moreover, endowed with a fragrance of rarest refinement. V. canadensis, being a woodland species, will also enjoy a rather cool position. It is a robust plant with heart-shaped, serrated leaves and big, starch-white blooms with a yellow eye set in a stain of purple. V. c. var. Rydbergii, which I have seen but once or twice and never been able to acquire, is a still finer plant.

As for V. odorata, a place which is not too hot nor yet too rich—for the plant gets gross by too good a living—must always be found for the yellow form usually listed as V. sulphurea. Indeed, there would seem to be more than one of these yellow Sweet Violets, but my own favourite is a soft nankeen, the flowers being small. This plant, although it flowers profusely, is never lush and pushful in a poor soil. V. hirta is another native which is worthy of wider recognition, and here again is a species which can be relied upon to remain in such a neat little tuft that it may be placed with the choicest plants without suspicion. V. hirta, moreover, can do with drier, more sun-beaten places than most. Its narrow, heart-shaped leaves are pale green and downy and the flowers, which stand well above them in April, are much the same colour as those of V. odorata. These, however, are scentless, or nearly so, and apt to vary considerably in colour. V. calcarea, given specific rank by some botanists, appears to be a very dwarfed form of V. hirta found on some of our limestone hills. Although V. hirta extends far into the north, I have seen it in splendid feather, with very large flowers, in southern Europe.

V. hederacea, the New Holland Violet, once known as Erpetion reniforme, is a frail and delicate little species which I once had doing well for some years in a cool, rather moist but sunny spot. Delicate it may not be in constitution, nor particularly touchy in temper, but V. hederacea deserves the adjective on account of the singularly dainty, almost chaste, appearance of its elegant little purple Violets. These, with their petals often tipped with white, stand an inch or so above the close mat of vivid kidney-shaped leaves, and a well-grown plant will produce an amazing crop throughout the greater part of summer. Seedlings are often produced in plenty, and some of these potted up in autumn enable one to leave the parent plant to the chances of winter with an easier conscience. *N. Wales.*

THE SMALLER LAND-OWNER AND TREE PLANTING.

THE majority of civilised countries are now anxiously concerning themselves with the position they occupy as regards supplies of timber, and the areas of forest land still left in the hands of the State. The process of forest destruction has been going on for many centuries in the older countries of the world, and in some cases woods have practically vanished, and nothing remains but a few scattered trees or clumps, and an occasional remnant of native forest which has escaped destruction through accidental causes or inaccessibility. In the newer countries, of which North America is a prominent example, the same process is going on, but sufficient time has not yet elapsed for the full effect to be seen. During a period of less than two hundred years, however, the United States have managed to dispose of about 300,000,000 acres of forest, and Canada is following in the same direction. Allowing for the increase in population and the development of agricultural activities, the rate at which the virgin forests of the world are disappearing is about ten times faster than that which occurred in the older countries of Europe during the middle ages, when methods of exploitation were of a more primitive nature, and the need for intensive cultivation of land very much less.

There is little doubt that the maintenance of forest and woodland has been rendered difficult in most countries by the various methods of land disposal which have gradually resulted in the individual taking the place of the State as owner. The feudal system started this process in England and many parts of Europe, and during the course of centuries the tendency has always been towards the division of large blocks of State land into privately-owned or controlled estates, until little remains in direct State ownership. This process is going on with extraordinary rapidity in many parts of Canada, Australia and other British possessions, with the result that various forest areas possessing great potential wealth are being surrendered or leased to private individuals at almost nominal prices, the timber being frequently burned or destroyed without reference to its present or future value, the one thought only being to get it cleared off the ground. The example of the United States in connection with the change from state to private ownership is being rapidly followed in all parts of the temperate zones. In 1850 almost all the forest land in the States was publicly owned. At the present time twenty per cent. only remains in State forest reserves, and many of these constitute merely the poorest and most inaccessible areas which have not been worth the private speculator looking at too closely. This is merely an example of what is taking place in most new countries with regard to public forest lands.

In the British Isles we are faced to-day with a new factor which is making itself rapidly felt in connection, not only with woodlands, but with hedgerow trees which have hitherto changed a bare, and in many ways uninteresting, country into one of great beauty, and which presented many attractions to the visitor from abroad. Not more than half-a-century ago the greater part of rural Britain consisted of estates varying from possibly 5,000 to 10,000 acres or more in extent, and which were nominally under the control of one individual landowner. Every part of an average estate was studded with small woods, belts, and hedgerow trees which were the exclusive property of the landlord, and the latter was usually an individual who took an interest in the appearance, not merely of his estate, but of the country at large. Whatever disadvantages attached to hedgerow trees in general, and however much they may have been objected to by the farming community, there is no doubt that they formed, and in many cases still form, an essential feature of rural England. But on the breaking up of estates which is proceeding with increasing rapidity, numerous farms become separate freeholds owned by individuals who, possibly from necessity, but in the majority of cases from inclination, proceed at once to cut down the majority of the timber trees existing at the time of the transfer. This act in itself may in some cases be desirable on economic grounds, and may not be sufficiently practised to alter at once the general appearance of the country. But the serious feature is the fact that no steps are being taken to replace trees which disappear through felling or natural decay, and this neglect will undoubtedly lead to an entire change in the appearance of many districts which have hitherto been regarded as typical examples of picturesque landscapes.

In the older methods of dividing land into fields, or enclosing it against highways and open spaces, banks and hedges were usually the means adopted. This form of fence doubtless took up a good deal of space, and when time and labour were considered, was particularly costly. There is no doubt, however, that the old hedgerows acted as nurseries for indigenous timber trees, and the majority of Oak, Ash, Elm, Sycamore and other species which constitute the bulk of our hedgerow timber owe their existence to this particular form of fence, and whatever felling occurred was, sooner or later, replaced by seedlings or suckers. In these days posts and wire fences are invariably erected whenever a piece of ground is divided or fenced in, and the hedgerow tree does not come into existence. This change alone will be responsible, in the long run, for millions of trees being lost to the country-side.

Coming to the small wood of twenty, thirty or fifty acres, as the case may be, which the larger landlord made a special point of creating and preserving over his estate generally, we find a similar change is taking place. These woods, as part of the one estate, could be protected and managed in conjunction with many other branches of estate work under the control of one or two estate officials, such as the forester, bailiff, or steward. The splitting up of an estate frequently leaves these smaller woods isolated, and the estate owner finds it impossible to retain them without considerable expense and inconvenience. The usual remedy is either to sell them to the adjoining tenant or when, as is frequently the case, this tenant is not in a position to purchase them at anything like their market value, the timber is sold and the land thrown in to the adjoining farm at a nominal price.

The disappearance of hedgerow trees and small woods, therefore, appears to be inevitable over large areas of rural England, Ireland, and parts of Scotland and Wales, with the breaking up of large estates, and there does not appear to be any power or inclination on the part of the public authorities to find an effective remedy. In Great Britain the Forestry Act of 1919 brought into existence the Forestry Commission, with a view to creating an additional area of forest to the extent of nearly 2,000,000 acres. The object in view was not, of course, connected in any way with landscape or aesthetic considerations, but had for its motive the creation of a timber reserves which could be utilised in national emergencies, such as those brought about by the European war. Associated with this function, the Commission was empowered to assist private owners to plant or replant bare ground or cleared woodland, but it possesses no power to control private woods or to maintain the timbered area of the country in general, except through its own activities. Great Britain possesses, approximately, 3,000,000 acres of privately owned woodland, and assuming that the Forestry Commission's operations will ultimately lead to the creation of an additional area of 1,000,000 acres, and that no change takes place in the private ownership of the remainder, it is evident that seventy-five per cent. of forest will still remain privately owned throughout the country. At the present time, of course, the percentage is much higher.

What, may we ask, is happening to these 3,000,000 acres ? During the European war something like half-a-million acres were felled, or heavily thinned, partly owing to the national necessity which arose, and partly to the high prices which tempted every owner of timber to convert it into cash. During the ten-year interval which has elapsed since that time it would not appear that more than 50,000 acres have been planted or replanted by private owners in spite of the aid of grants and less attractive forms of assistance. This represents, if our assumption is correct, only ten per cent. of the cleared and thinned areas. This would indicate that private woodlands are not being maintained in anything like the desired proportion, as against the activity of the Forestry Commission we must set the apathy of the private owner before the net result can be seen.

It may be asserted that woodland preservation is a matter concerning the economist rather than the socialist or artist. This view, however, is open to question. The amenities of a civilised country cannot be secured and preserved on purely economic principles. If the numerous activities in which the Governments of the day concern themselves are taken into account, it can easily be seen that comparatively few of them have anything to do with economics or, at any rate, to an indirect extent only. By far the greater proportion of them are socialistic, and aim in theory, if not in practice, at rendering the life of the average individual easier, safer, and more pleasant. Is there no place for a picturesque landscape in the life of the community to-day ? We are provided with parks and open spaces to an extent which was never dreamed of half-a-century ago, and the cost of these, in the aggregate, amounts to many millions of money if their capital value is taken into account, but, however attractive they may be they do not take the place of, or afford an adequate substitute for, natural scenery, and natural scenery without timber trees and woodlands does not seem to be worthy of the name unless in regions where mountains are sufficiently massive to dwarf the average features of the country-side, and provide adequate relief in themselves.

The only attempt hitherto made to deal with the preservation of privately-owned timber by Government control is that recently made by the Irish Free State. The conditions in this country as regards land tenancy differ materially from those in Great Britain. In the Irish Free State all agricultural land in the occupation of tenants has been nominally acquired by the State, to whom the tenant pays his annuities in lieu of rents, and ultimately becomes the owner in fee of the holding. Practically all timber standing on these holdings was acquired from the landlord without any payment being made and became the tenants' property on the date of the transfer. Since the passing of the earlier land acts vast quantities of this timber have been felled, and little or no provision made for replacing it.

With a view to preserving such timber as still remains, the Free State Forestry Act, 1928, was passed. This measure met with some opposition, but with a still greater measure of approval, and no suggestion was made which could be considered an adequate alternative to the provisions of this Act. The chief and most important of these provisions is the compulsory notification of felling operations on all landed property, and the power conferred upon the Minister for Agriculture to prohibit these fellings when it is considered necessary. Most of the loss in ornamental timber throughout the Irish Free State is due to indifference on the part of small occupiers, and although compulsory notification will not necessarily prevent trees from being cut, it is hoped that it will check a great deal of unpremeditated and indiscriminate damage to the existing stocks of timber still remaining in the country. It has been contended that an owner should do what he likes with his property, but a great deal of this particular asset has been acquired by means of public funds, and passed on to the tenant purchaser of holdings without any charge. It is only reasonable, therefore, that the Government should possess the power to check its destruction until it has fulfilled its natural purpose, namely, the ornament and shelter of the district in which it stands. Wind and decay will remove this timber in course of time, and this cannot be avoided, but the labour of a past generation should not be sacrificed entirely, and the object of the Act is to prevent this taking place.

How far it will achieve its object remains to be seen, and it will be interesting to compare the results following this Act, and those due to the unrestricted ownership possessed by the individual landowner in Great Britain. The examples of many parts of Spain, Portugal and Italy illustrate what can be done in the way of denuding the country-side of its tree growth. Is there sufficient public spirit in the new landowners of the country to prevent a similar process going on in the British Isles ? If not, what is the remedy ?

A State Forestry Department cannot operate on a small scale. Administrative difficulties prevent areas being dealt with of a corresponding size to the average estate wood, while hedgerow timber is absolutely out of the question as a form of State property. From an economic point of view, the creation of large State forests on inferior types of land may be the soundest objective to aim at, but these State forests alone will not maintain the present appearance of rural England, or the British Isles in general, and it is doubtful if the private landowner will, or can, continue to plant or preserve trees in future in the manner customary on the average estate of fifty years or so ago. The whole problem is surrounded with difficulties, and it remains to be seen whether the Irish Free State has discovered a possible solution, or is making a futile attempt to check the inevitable course of events. *A. C. Forbes, Bray.*

BOG AND WATER GARDEN.

PRIMULA FLORINDAE.

The more one sees of Primula Florindae under different conditions of soil and exposure, the more does one expect of its future, and its possibilities as one of the parents of late-flowering hybrid Primulas are holding out vistas of the gardens of a few years to come, adorned with flowers of other colours, on plants as vigorous and as easily grown as P. Florindae itself.

The day before I read in your issue of August 24 the twenty-eighth instalment of Captain Kingdon Ward's intensely interesting account of his "Tenth Expedition in Asia," I had been examining the vast stock of hardy Primulas at Moniaive, and had said to Mr. J. Adamson that the time would come when P. Florindae and its hybrids might be as valuable in the late summer and autumn garden as the Polyanthus in spring. It was, therefore, most pleasing to observe that Captain Kingdon Ward, in telling of the discovery of a "Sikkimensis" with maroon-crimson flowers, which he describes on page 150, goes on to remark : "and if extremes mate, and it can be persuaded to infuse some of its breeding and sanguine complexion into P. Florindae, the resulting mulattos should be worth while."

There are some who do not care for P. Florindae, which they consider less graceful than P. sikkimensis, but when we remember its later flowering and its wonderful constitution, the prospect of hybrids of various colours is most alluring. There are a few hybrids in cultivation, but not yet in commerce, and if we can have new colours among these it would be a boon indeed. *S. Arnott.*

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AN ENGLISH GARDENER IN CHILI.

(*Continued from p.* 185).

REPRESENTING Iridaceae are several species of Sisyrinchium (Figs. 110 and 111), the best being a graceful plant (probably S. roseum), in which umbels of pink flowers appear to arise from the side of the stem, in the same way as in most Juncus species, the continuation of the stem serving as sheath for the young blooms. The individual flowers, although not large, are pretty; the golden stamens project outwards, while the petals are frequently reflexed. This species is carried over the drought by the fleshy roots that radiate from the crown of the plant in a similar manner to those of the garden Ranunculus; it also seeds freely.

One of the most striking plants met with in Chili is the "Cardon," or Puya chilensis. The local name appears to be derived from "Cardo," a Thistle, probably owing to its horrible, hooked spines, which, incidentally, are curious in that those at the tips of the leaves point upwards, while those towards the centre of the rosette point down; however, it is far more majestic than any Thistle, as its huge inflorescences tower above the surrounding vegetation. The plant is typical of its family, Bromeliaceae, possessing the long, arching, linear leaves arranged in the form of a closely-packed rosette, and generally a large number of rosettes combine to form a formidable clump which may cover anything up to ten square yards, the leaves reaching four feet to six feet high. From a plant of these proportions one would expect a large inflorescence, and Puya, in this respect, is no disappointment; the spike frequently reaches ten feet high, and the actual inflorescence covers from two to three feet, and is so much as a foot wide. It branches freely and horizontally from the main axis, the large, bell-shaped flowers being borne on the bases of these branches, the tips being barren. The individual flowers are beautifully symmetrical and wax-like, of a greenish-yellow colour, and approximately three inches in length by two-and-a-half inches across the mouth from petal to petal. They afford an interesting example of pollenation by birds, and Dr. Friedrich Johow, in his *Estudios de Biolojia Vegetal,* published in Santiago in 1910, states that in places where the plant is abundant it is difficult to find in spring, a "Tordo" (a small black bird) which does not show in front of his head a large mantle of the most beautiful golden colour; certain it is these birds may frequently be seen resting on the sterile branches and busily sucking the nectar. It is equally certain that the agent of pollenation, be it bird, insect or wind, does its work effectively, for millions of seeds are contained in one inflorescence; in fact, if an old mature spike is given a sharp knock in autumn, a positive shower of light, flake-like seeds descends, these being carried some distance by very little wind.

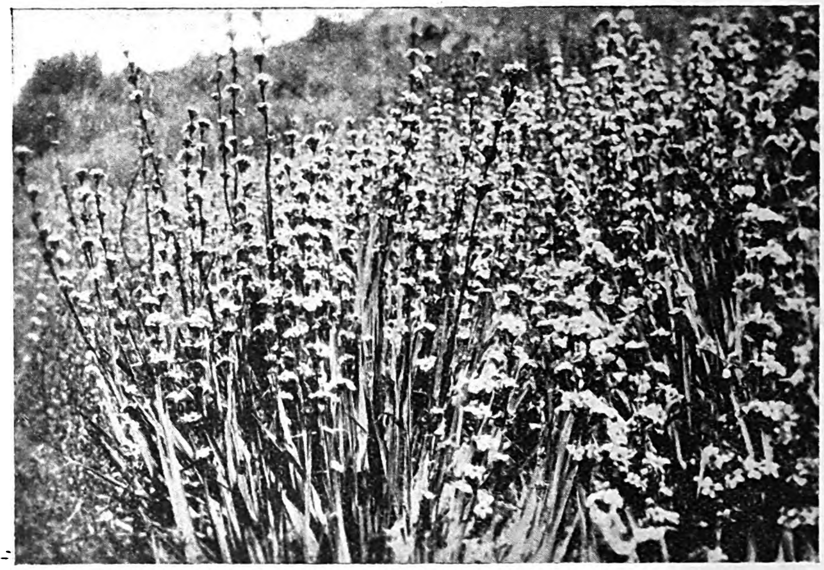


FIG. 110.—SISYRINCHIUM SP. (PROBABLY S. STRIATUM), AT HOME, NEAR VALPARAISO.

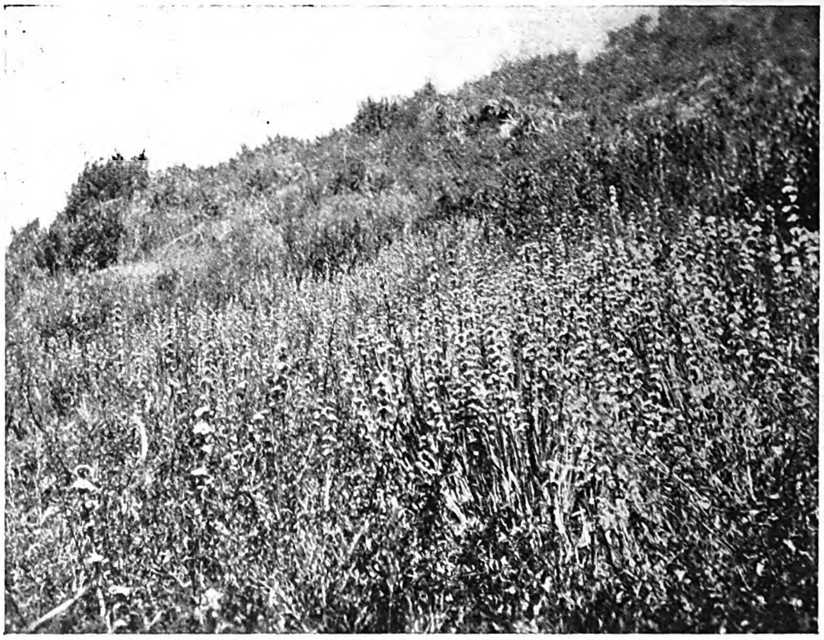
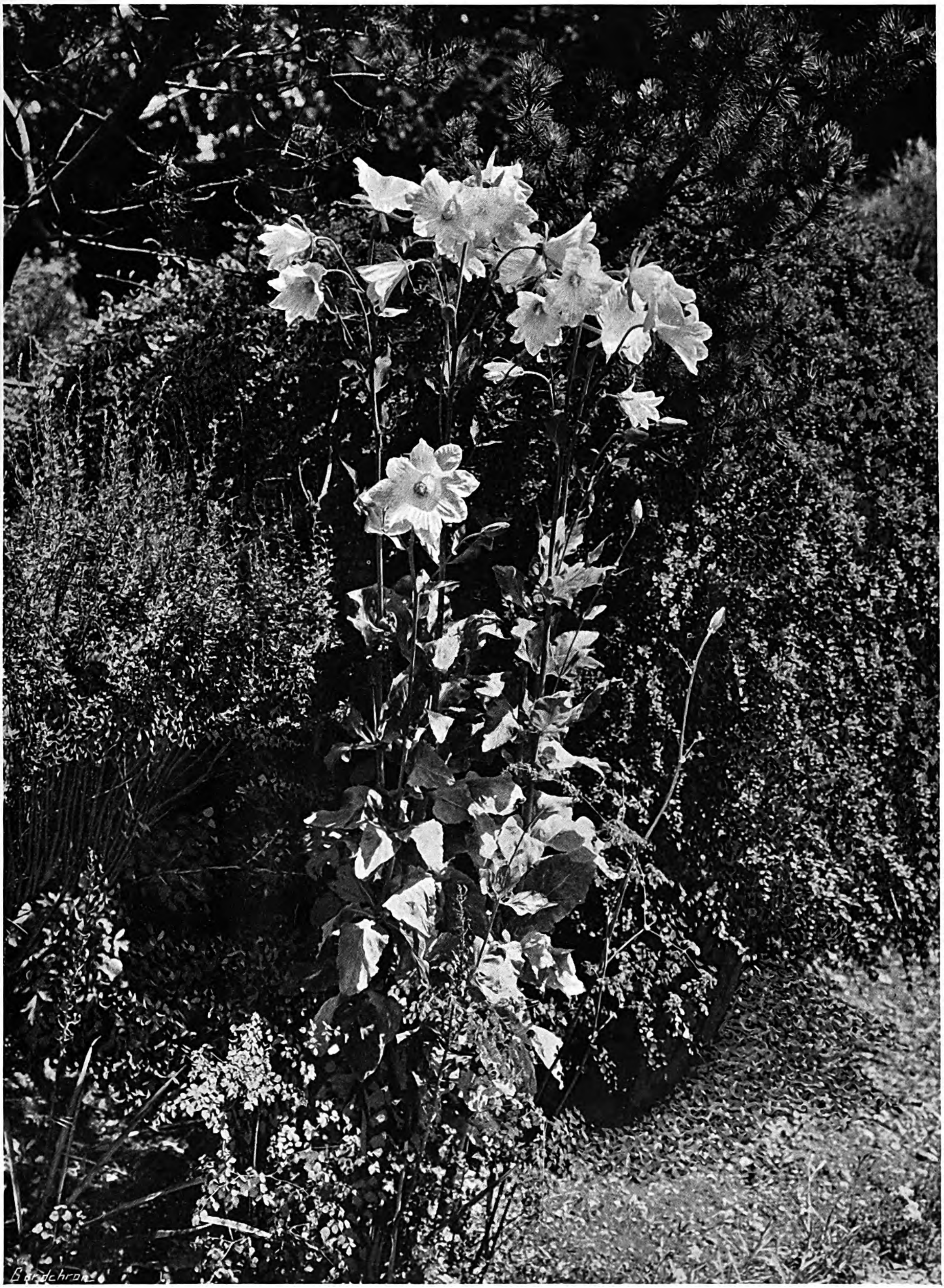


FIG. 111.—SISYRINCHIUM SPECIES, NEAR VALPARAISO.

The Puya inflorescence, when arising from the centre of the rosette, may best be compared with an enormous head of Asparagus; the head is slightly swollen and tapering to a sharp point, and the whole is covered with overlapping scales; the stem continues to elongate until the head is several feet high, when the latter commences to swell, finally to branch and flower. It is easily understood that Puyas are no favourites with the farmers and stockmen, especially as they are so effectively protected by spines, equally as formidable on the old, dry dead leaves, which are persistent and continue to protect the stems. This, however, proves to be their weak point, as these dry, dead leaves burn fiercely, and every winter, when there is no risk of extensive fires, large numbers are burned.

Before leaving these sand hills, it is of interest to note that only three species of trees have been successfully planted on these areas. Eucalyptus Globulus is extensively planted, as it is quick-growing and highly valued as fuel; the other two being Cupressus macrocarpa and Pinus maritima. They have to be watered regularly during the first year after planting, by means of donkeys—a laborious business. I have seen established trees of other species of Eucalyptus and of Casuarina stricta, but these are planted only for ornamental purposes. *G. W. Robinson.*

(*To be continued.*)



OSTROWSKIA MAGNIFICA.

MESEMBRYANTHEMUM.

(*Continued from p.* 208).

MITROPHYLLUM, Schwant.

Key to the Species.

1. Plants in flower not more than about 1–1½ inch high.
8. nanum and **Schickianum.**

Plants from a few inches to two feet high. **2**

2. United pairs of leaves forming conical bodies stouter than the branches that they terminate. **3**

United pairs of leaves forming cylindric bodies not stouter than the branches they terminate; dwarf shrublets 6–12 inches high, with distinct internodes. **7**

3. Internodes distinctly developed on both vegetative and flowering parts of the plant and varying from ¼–2½ inches long and 1½–3 lines thick. **4**

Internodes of the vegetative growths suppressed and crowded together or not more than about 1–1½ lines long; those of the flowering parts elongated and ¼–3 inches long. **5**

4. Internodes 1–2½ inches long, and the terminal cone separated from the lateral cones next below it by an internode 1–2½ inches long; free leaves 4–6 lines broad at the base; petals yellow.
5. dissitum.

Internodes ¼–1 inch long, and the terminal cone sub-sessile among the lateral cones or only separated from them by an internode 2–6 lines long; free leaves 4–7 lines broad at the base; flowers unknown.
4. proximum.

5. Vegetative cones 2–3 inches long and an inch or more thick, all basal and practically stemless, being permanently clustered close to the ground; flowering stems arising from vegetative growths and 6–16 inches high, with internodes ¾–3 inches long, dying after fruiting; free leaves 1–1¼ inch broad at the base; petals white.
1. grande.

Vegetative cones 9–16 lines thick at the base, not basal, mostly solitary at the ends of branches and mingled with the flowering growths on various parts of the shrublet; free leaves 6–12 lines broad at the base. **6**

6. Cones 1¼–2½ inches long; internodes of the flowering branches 3–12 lines long and the lower one not resembling a long peduncle; pedicels about 6 lines long; petals white at the base, pale pink at the upper part. **3. mitratum.**

Cones 2–3½ inches long; lower internode of the flowering branches 4–5 inches long, about half as thick as the internode below it and resembling a peduncle; pedicels an inch or more long; petals pure white. **2. Pillansii.**

7. Stem and branches more or less distinctly constricted at the nodes; flowers and fruit unknown. **7. clivorum.**

Stem and branches more or less thickened (never constricted) at the nodes; flowers and fruit unknown. **6. cognatum.**

These plants are not exactly easy to cultivate. They require a good sandy soil and are best watered from below, by standing their pots in saucers of water occasionally, and when the vegetative season commences their roots should not be allowed to completely dry up, at the same time they must not be overwatered, for in the region they inhabit they only receive three or four inches of rain per annum, and subsist for the greater part of their life upon dew or moisture condensed about their roots. Cuttings of some species do not root very readily, but in my experience the best time to take cuttings is in July.

1. M. grande, N. E. Br. (Fig. 112).—Plant with basal vegetative growths all without internodes and seated on the ground and persisting, each growth finally producing a branching stem with elongated internodes, which dies after flowering and fruiting. In the axils of the leaves at the base of the flowering stem are a pair of sessile leaf-cones that carry on the vegetative growth. When at rest, the vegetative cones are 2–3 inches long, an inch or more thick at the base, and somewhat resemble the pseudo-bulbs of an Orchid in appearance; the free leaves are 3–4 inches long and 1–1½ inch broad at the base, thence tapering to an obtuse point, flat on the face, rounded at the back, glabrous, light green in colour. Flowering stem 6–16 inches high, with internodes ¾–4 inches long and 1½–4 lines thick, somewhat compressed and 2-edged, branching in a forked manner, with the branches erect and bearing reduced leaves at the nodes, and a flower in each fork or at the apex. Pedecils 2–6 lines long on native plants, about 1½ line thick, thickening upwards, compressed, papulose. Calyx (only seen on a withered flower) sub-equally 5-lobed, with the ovary part very shallow and broad, and lobes 4–5 lines long, 2½–3½ lines broad, probably larger when alive, oblong, obtuse, 3 of them with a short dorsal point. Corolla 2–2½ inches in diameter, expanding after noon; petals in about 3 series, 9–12 lines long, about ¾–1 line broad, linear, white, shining. Stamens about 2 lines long; filaments white; anthers yellow. Stigmas 5, subulate, about 1½ line long. Ovary with 5 ridges on the flat top. Capsule when closed 5–5½ lines in diameter, very shortly and broadly obconic, with 5 valves and cells, grey; when expanded about 8 lines in diameter; valves spreading horizontally, deltoid; expanding-keels broad and flattish, elevated at the inner edge, diverging from the base, with incurved, awn-like tips and broad membranous margins; cells somewhat acutely roofed with membranous cell-wings. Seeds nearly ½-line long, Pear-shaped, smooth, light brown.

Mesembryanthemum proximum, L. Bol. in *S. Afr. Gard.*, 1927, p. 239, Fig. 3, and *Notes on Mesemb.*, I., p. 70, Fig. 3, not of N. E. Br.

Little Namaqualand: On hills north of Brakfontein, Pillans 4,933.

So far as known to me, this fine species stands alone among those in this genus that have tall

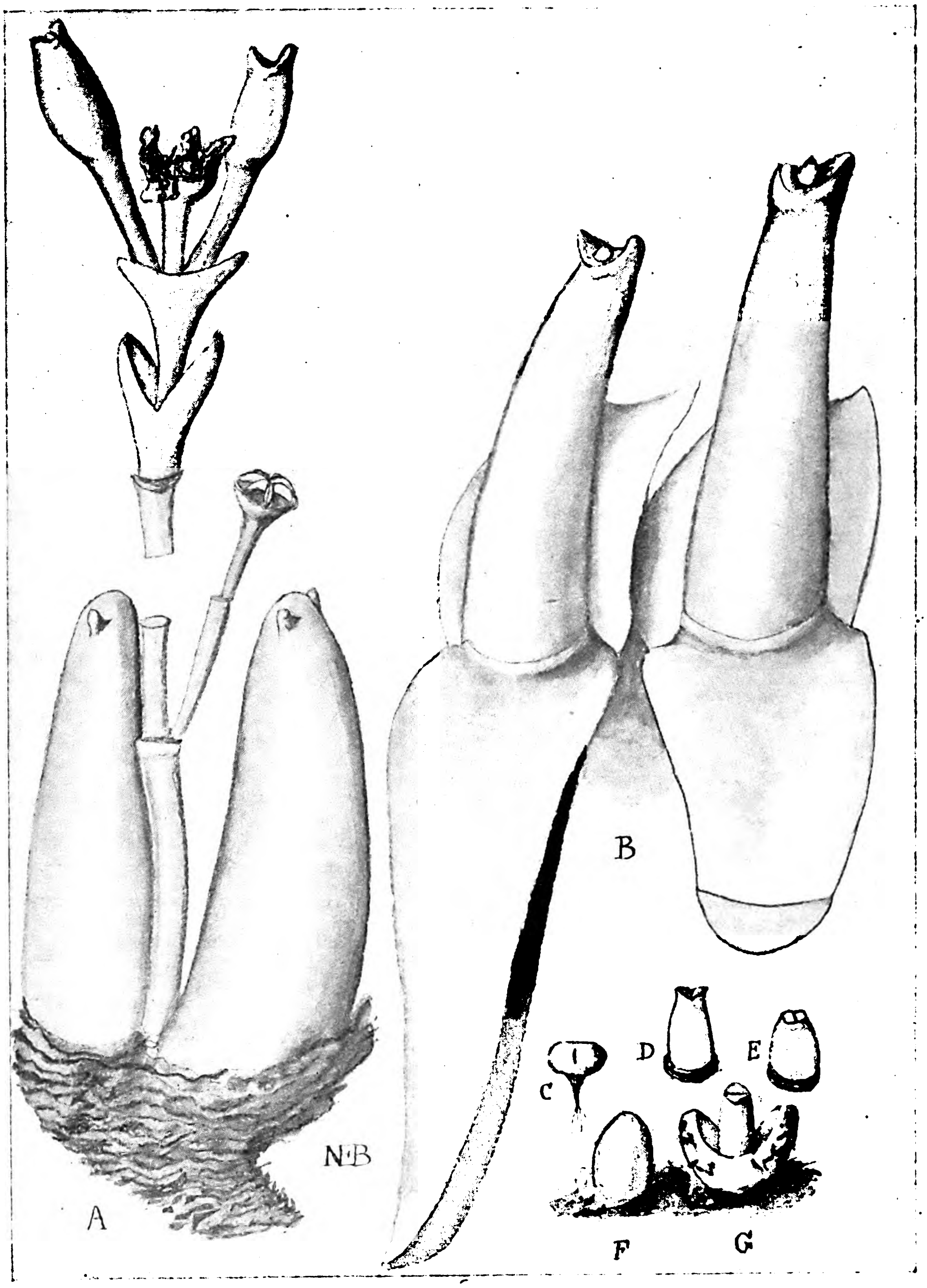


FIG. 112.—MITROPHYLLUM GRANDE.

A.—Two growths at rest, with flower stem abbreviated; B.—The same when making new growth; C—G.—Seedling stages; all natural size.

flowering stem in having its vegetative growths seated on the ground without internodes between the successive growths. It is incomprehensible how it could possibly have been mistaken for M. proximum, as it in no way agrees with either my figure or description of that species, which bears its growths in clusters at the ends of the branches. Fig. 112 represents at A two growths from a clump with a flowering stem derived from a previous sessile cone arising from between them, of which a portion is omitted from the drawing. This flowering stem is probably two or three years old, its lower part bears fruit, and the terminal part has a withered flower and two flowering cones.

Seedlings of this species have the cotyledons as represented at Fig. 112 C, and the succeeding stages as shown in the same figure at D–G; D and E represent seedlings of one year's growth preparing to go to rest; F, a seedling at rest, but about to resume growth in the second year; G, the same at a later date when forming a fresh cone, and with the remains of the skin of the old cone (F) clinging to it. These young cones are of a somewhat translucent light green, and glitter as if covered with minute, watery papulae, but under a lens the cells are seen to project as papulae only on the lobes, elsewhere they do not project into distinct papulae.

2.—M. Pillansii, N. E. Br.—Plant 12–16 inches high. Branches 5–6 lines thick, with the internodes on the vegetating parts 2–3 lines long, crowded, and on the parts about to flower longer and up to 14 lines long, the vegetating and flowering parts intermingled. Cones 2–4 inches long, 1–1½ inch thick at the base. Free leaves 4–4½ inches long, ⅔–1 inch broad and ⅓–¾ inch thick at the base, thence tapering to a sub-acute point, very minutely papulose. Flowers solitary, terminal! the first one on a peduncle 4–5 inches long and 2–2½ lines thick (the equivalent of the lower part of the flowering branches in the other species), with a pair of reduced leaves or bracts at its apex, from the axils of which small secondary flowering cones arise. Pedicel about 1½ inch long. Calyx with the longer lobes 8–9 lines long, and the three shorter lobes with membranous margins. Corolla 1½–2 inches in diameter, opening in the afternoon, scented; petals in 3–4 series, 5–9 lines long, ¾–1 line broad, linear, subacute or obtuse, white. Stamens in a column about 4–4½ lines long and 5–6 lines in diameter, with the outer spreading away from the rest; filaments white, anthers yellow. Stigmas 5, about ½ inch long, exceeding the stamens, subulate, green. Ovary conical and stoutly 5-ridged on the top. Capsule shortly and broadly obconic, about 7 lines in diameter when expanded; expanding-keels closely parallel or nearly contiguous, with narrow marginal wings; cell-wings rudimentary.

M. mitratum, L. Bol. in *Fl. Pl. of S. Afr.*, Vol. VII, t. 274, not of Schwantes, nor Mesembryanthemum mitratum, Marl.

Little Namaqualand: On hills about six miles north-east of Oograbies Poort, Pillans 4,690.

Although figured as being M. mitratum, Schwant., this plant conspicuously differs from that species by its larger vegetative cones, the much more slender and very long and peduncle-like lower part of the flowering branch, longer pedicels and much larger and differently-coloured flowers.

3.—M. mitratum, Schwant. in *Zeitschr. f. Sukkulent*, 1926, p. 182, and 1928, p. 321; not of L. Bol.—A shrublet about 1–2 feet high, with vegetative and flowering growths intermingled on the branches. Vegetating branches 6–7 lines thick, with very short, crowded internodes 1–2 lines long, and the flowering branches about 3 lines thick, with internodes ¼–1 inch long, dark brown. When at rest a vegetative cone is represented as about 2½ inches long and about an inch thick at the base, and a flowering cone about 1¼–1½ inch long and ¾ inch thick. Leaves not represented nor described. Pedicels represented as less than half-an-inch long, and as arising from the axil of the one of the old leaves of a flowering cone, but the flower is described as forcing "its way out through a slit at the side" of the cone. Calyx 5-lobed, three of the lobes with membranous margins. Corolla represented as about ¾ inch in diameter; petals linear, white at the base, pale pink at the upper part.

Mesembryanthemum mitratum, Marl., in *Tr. Roy. Soc. S. Afr.*, Vol. II, p. 35, t. 1, f. 4 (1910), and *Fl. S. Afr.*, Vol. I, p. 205, t. 51, f. C.

Little Namaqualand: Sandy deserts east of Port Nolloth, Alston, in Herb. Marloth 4,690.

This species is unknown to me and evidently it is not the same as the plant figured by Mrs. Bolus under the name of M. mitratum, its cone being smaller, flowering in a different manner, and its flowers smaller and different in colour. *N. E. Brown.*

(*To be continued*).

GARDENING TWU CENTURIES AGO.

Among a number of quaint old books, which have come down to us, few are more suggestive of enormous strides of human knowledge than *The Compleat English Gardener; or, A Sure Guide to Young Planters and Gardeners.* It professes to teach "The ordering of a garden of pleasure with variety of Knots and Wilderness Work after the newest fashion."

At the end are no fewer than twenty-three diagrams for the laying-out of gardens—called, most inappropriately "Wilderness Work," but in their prim stiffness more suggestive of patterns for chip carving than designs for dealing with living plants. The only other illustration is of a man in modern-looking "plus fours" and a long-skirted coat in the act of "inoculating" very elderly-looking fruit trees with new grafts. No date is on the title-page of my copy, but against one of the many owners names scrawled on the cover is "Samwel Wheatcroft, his booke, 1721."

It was evidently a popular work, for mine is the Eleventh Edition. As to the authorship, we are told it was "Begun by Leonard Meager above thirty years a practitioner in the art of gardning, and now enlarged by a Lover of this Princely Diversion and Profitable Recreation. Printed for Mr. Wotton at the Three Daggers in Fleet Street, price 4s." There is a short preface, beginning "Reader," recommending the "compleatness" of the book, disparaging all others on the same subject, and concluding, "Farewel. S. G."

The advertisements of contemporary books are amusing: "The History of Bees, showing their Admirable Nature, their Government, Loyalty and Industry, Enemies, Wars and Magnanimity, together with the right ordering of them"—doubtless a very different "ordering" from our modern frame and section hives and honey-extractors. "The Way to Save Wealth; or How to Live on 2d. a Day." "The Way to get Wealth by making 23 sorts of English Wine, equal to French." "Markham's Masterpiece, showing how to cure horses and all kinds of black and white cattle."

The author is great on grafting and the budding of Roses. He gives a catalogue of fruit trees to be obtained at "Mr. Colchester's, at the Ducking Pond, Clerkenwell Green" and other places. There are in his list five-and-twenty kinds of Cherries, six "Apricocks," six Figs, including "Blew Spanish," eleven Grapes, and long lists of Apples and Pears with quaint and obsolete names. What modern gardener ever heard of a "Davey-gentile Apple," or a "Pig's tale pear"?

When we come to the list of "Divers pretty flowers fit to furnish a garden," the old names are very amusing. What can "Melancholy Gentleman" have been? "Great Blew Bindweed or Connuvolus Major" is more comprehensible. "Larks heel or Spurs—divers varieties." "Spanish tufts." "Ladies Smocks." "Double Sopewort—a busie runner in the garden"—this characteristic has not changed with the centuries, as we know to our cost! "Munkhood," "Mollies," "Flowerdeluces," "Sultan's Flower or Turkey Corn Flower" and "Jerusalem Cowslips" probably were all favourites in the flower-beds of Queen Anne's time.

Chapter VII is headed "Rare Curiosities in Gardening, being secrets known to very few." "To make a Sallad grow from seed in three or four hours, fit to cut and be brought to table" sounds startling! Ashes of moss and manure were to be worked together, dried several times in the sun, spread upon an iron plate over a slow fire and sprinkled with warm rain water. In this you were to plant seeds of "Purslain or Lettice" that had been soaked in warm water "mixed with dregs of Oyl," and this very rapid crop might be expected!

To make Tulips and other flowers of the colour you are pleased to have them, the seeds are to be soaked in dye. "For black, ink; green, verdigrease; yellow, tumeric. Sow them in proper ground and you will find blowing in due time a wonderful change!" "How to produce double Gillieflowers of any seed whatever." "Take a bean and put into it the seed of a single Gillieflower, stopping the hole with a little soft wax, and a Gillieflower will spring from it double and large!" "To make Gillieflowers of extraordinary bigness mix bean flower with the soil." In spite of spelling, this must refer to meal, not bean blossom. "To make a Peach tree bear with writing on the fruit":—"Take the stone of a good bearing Peach, bury it in suitable soil till it be half open, so take out the kernel gently without breaking it, and write on it with vermilion made liquid in the beaten white of an egg, and with a pen write what you please on the kernel. Then put the kernel the right way into the shell, close it with a little soft wax, and when it produces a tree bearing fruit the words in a lesser or greater measure will appear on the Peaches!"

Could anyone have really believed such stuff as this? Yet it is all told with such engaging confidence and simplicity! Is it possible that in a couple of centuries our modern books will seem as ridiculous in the eyes of posterity as this does to us?

Our gardener had a greenhouse to preserve his "Orange and Limon" trees in winter. This was to have sashes on the south side and—"I approve it rather to be thatched with a thick coat of wheat straw or fine reeds than to be tiled or slated, for though in a nobleman's or gentleman's garden it is not so sightly, yet it abundantly more keeps out the cold air." You are to take care that no noisome insects lurk in this house to infest the plants with their bites or venomous spume, and if you perceive such marks smoak it with franincence or storax." This greenhouse was to be heated with "Old coal or charcoal" in a stone-built stove.

There is a short chapter on "Prognostics, or Observations on the Moon," directing when to sow and plant. "Prune your vines when the moon is full, and it is held that neither bird nor insect will infect your Grapes." "When the moon is in Cancer, set and sow all sorts of pulse." "If you are desirous to have low or dwarf plants, then it is held proper to cut, set and plant in the Wain of the Moon."

Passing over the chapter "To order Vineyards" (it must have needed a sanguine temperament to attempt Vine culture in our climate), we come to recipes for herb teas and other medical nostrums. "The roots of White Brony bruised and apply'd of itself to any place where the bones are broken helpeth to draw them forth, as also splinters, arrow heads, and thorns in the flesh." "Hounds tongue is good against the biting of mad dogs, and laid on the bottom of your feet Hounds will not bark at you!" "Mistletoe hung round the neck Witches can have no power over you." "Mugwort worn under the soles of your feet you may travel forty mile and not tire" (very convenient this in pre-cycle and motor days!). "Adder's tongue cureth the biting of an adder. Viper's bugloss is a remedy against the stings of vipers and other venomous beasts. Arrowhead is good for a wound made with an arrow!" How simple it all sounds if one could only believe it!

Poor old book, in its well-worn brown leather cover—its day is past, its knowledge has vanished away, but it may afford a brief amusement to some readers who still find pleasure in the "Princely Diversion and Profitable Recreation" of gardening. *Maude Robinson.*

RELIEF OF RATING UF AGRICULTURAL HEREDITAMENTS.

PERHAPS the most important legislative measure of recent years has been the new system of rating, and the derating of agricultural land and buildings, completed by the late Government during the closing session of the late Parliament. Five Acts in all were necessary, the Rating and Valuation Acts, 1925 and 1928, the Rating and Valuation (Apportionment) Act, 1928, and the Local Government Act, 1929. In addition, the Agricultural Rates Act, 1929, was passed, making the derating enactments retrospective to April 1, instead of from October 1, as originally provided for.

This article will endeavour to explain as simply and plainly as possible those particulars pertinent to anyone who comes, by his premises, within the scope of the different Acts. The Agricultural Act, 1929, will be dealt with at the end of the article.

The Apportionment Act, 1928, which might be called the classification act, called upon local authorities to distinguish in special lists hereditaments under the following headings:—(*a*) Agricultural, (*b*) Industrial, (*c*) Freight-Transport; but, of course, the writer will confine himself to those under heading (*a*), Agricultural.

This Act contains a definition of "Agricultural hereditaments," which enlarges that hitherto used. It includes woodlands, etc., hitherto rated, and also brings in poultry farms. Also "agricultural buildings" are more clearly defined.

The Act reads—

"The expression 'Agricultural Hereditament' means any hereditament being agricultural land or buildings." Moreover—

Agricultural Land means any land used as arable meadow or pasture ground only, land used for a plantation or wood, or for the growth of saleable underwood, land exceeding one-quarter-of-an-acre used for the purpose of poultry farming, cottage gardens exceeding one-quarter-of-an-acre, market gardens, nursery grounds, orchards or allotments, including allotment gardens within the meaning of the Allotments Act, 1922, but does not include land occupied together with a house as a park, gardens (other than aforesaid), pleasure grounds, or land kept or preserved mainly or exclusively for purposes of sport or recreation, or land used as a racecourse; and for the purposes of this definition the expression "cottage garden" means a garden attached to a house occupied as a dwelling by a person of the labouring classes.

Agricultural Buildings means buildings (other than dwelling-houses) occupied together with agricultural land or being or forming part of a market garden, and in either case used solely in connection with agricultural operations thereon.

Allotment Gardens.—The definition of "allotment garden" in the Act of 1922 is an allotment not exceeding forty poles in extent which is wholly or mainly cultivated by the occupier for the production of vegetable or fruit crops for consumption by himself or his family.

Special Valuation Lists have been prepared under this Act, which, in addition to particulars already given on the main Valuation Lists under the 1925 Act, apportioned as to "Net annual value" parts of the hereditament (if necessary) as woodlands, other agricultural land and buildings. Also, rateable value was mentioned, but in regard to the latter the entry on list, if accepted as under the heading of "agricultural hereditament," will be "nil," thus no rates are payable on these parts.

These special lists will have been incorporated with the main valuation lists, and the particulars will thus be scheduled as required, with Farm House, Farm Buildings and Agricultural Land entered as to amounts apportioned to each. Gross value (if any) of the entire holding will also be entered in particulars in possession of Rating authorities.

If a person has nothing but what comes under any of the definitions as above, he will be absolutely exempt from the payment of ordinary rates.

If his holding comprises also dwelling house, he will be required to pay rates on this part of his property. It should be mentioned that in the assessing of this part of the property it is laid down in the Local Government Act, Section 72, that if the person who uses the dwelling-house is primarily engaged in carrying on or directing agricultural operations on the agricultural land connected with the dwelling-house, the estimated valuation must be made by reference to the rent at which the house might reasonably be expected to let from year to year if it could not be occupied and used otherwise than as aforesaid. Thus his assessment should be less than if the house was assessed as a dwelling-house for general use. It might here be mentioned that although the rating authority has wide discretionary power as to estimating what they think a hereditament is worth for rating purposes, the Central Valuation Committee (an advisory Committee to Local authorities) gives a formula for arriving at the rateable value to be apportioned to the dwelling house and farm buildings. Thus the gross value of the farm should be first ascertained or estimated. Then one-eighth should be taken as the value of the dwelling-house and farm buildings. Then the dwelling-house is to be taken as not less than sixty per cent. of this total. There are certain deductions allowed from gross value to arrive at "net annual value" which would be the amount upon which rates would be paid. An example may be quoted.

Gross Value of Farm ...	£240 per annum.
One-eighth for Dwelling-house and farm buildings	£30
For Dwelling-house 60% of £30 = ...	£18
Less deduction allowed under the Act	£7
	£11 per annum.

FIG. 113.—SOUTHPORT SHOW: MESSRS. BEES, LTD.'S FORMAL GARDEN.
(see p. 194).

Thus rates would be paid on £11 only.

Under this Act there is an additional authority, the Revenue Officer, an officer or person appointed by the Commissioners of Inland Revenue. This authority, of course, enters into the scheme by virtue of the fact that the Exchequer will be required to make grants to replace the amounts lost to the local authorities by the exemption from rates of most of the holding. If he disagrees with the rating authority as to values, or whether such property shall be accepted as agricultural, a consultation between these parties must take place. On the Special Lists, in addition to those hereditaments upon which the two bodies mentioned agree, there shall also be entered the conclusions of the two parties separately, when not in agreement. In the latter case, the Assessment Committee shall consider the particulars and after giving the two authorities fourteen days' notice of hearing, and the opportunity of calling and examining witnesses, shall enter on the list such particulars as they may think proper. Such decision shall be deemed to be a decision or an objection. If, however, the rating authority and the Revenue Officer are in agreement, the Assessment Committee has no power to alter any particulars except, of course, on an objection being entered and heard.

Objections.—It should be noted that, if anyone is aggrieved at the incorrectness or unfairness of any matter in the list, or the exclusion altogether from the list, he can enter an objection at any time, under Section 37, on forms provided. The objection is to be made to the Assessment Committee, which will give a decision. If then not satisfied, appeal is allowed to Quarter Sessions. It is important to remember that no action by any occupier of an agricultural hereditament was required to be taken in the compilation of the First Valuation List to exempt premises mentioned, but after the appointed date if any hereditament has changed its status by coming under the "agricultural hereditament" heading, claim for inclusion as such and exemption from rates must be made by the occupier, by way of an objection. Also any alteration in values desired must be secured by an objection. If in the opinion of the Rating Authority a hereditament has ceased to be an agricultural hereditament after the appointed day, such authority cannot alter same on lists, except on application by a "proposal" under Section 37 to the Assessment Committee, which will decide. In such an event, the occupier or owner, if either disagrees, can enter an appearance against the authority. Otherwise the conclusions in list must remain until the next general valuation, which will be held, for most districts, at practically speaking, every five years.

Assessment Committee.—At present and until April 1, 1930, an Assessment Committee for a county borough, is appointed by the Council, but not less than one-quarter must be of the Board of Guardians, and not less than one-fifth shall be persons outside both Council and Board of Guardians. In the case of any other Assessment Committee, it shall consist of persons appointed by the Rating Authority, the Board of Guardians, and the County Council. The proportion of each body is to be determined by the scheme constituting the area.

Rating Authority.—For a county borough this is the Council. For a county district, the Rural or District Council.

Water Rates.—Section 77 of the Local Government Act makes provision that where the water rate or charges is based on rateable value, for this purpose as there is now no rateable value for "agricultural hereditaments," the rate shall be based on the "net annual value." Where the net annual value does not appear on any valuation list, the value of the water rate is to be determined in case of dispute by two Justices of the Peace.

Agricultural Workers.. — The basis of assessment of a farm cottage used as a dwelling-house by a person employed in agricultural operations, where residence depends on employment on the particular agricultural land in connection with which the cottage is occupied, is the same as with a dwelling-house of the occupier of the farm. Thus the estimate must be made by reference to the rent at which the house might reasonably be expected to let from year to year, if it could not be occupied and used otherwise. Cottages not in this category will be assessed as ordinary cottages, notwithstanding that they may be occupied by agricultural workers.

Agricultural Rates Act, 1929.—The object of this Act was to bring forward the exemption from rates of Agricultural Hereditaments from October 1 to April 1. It is provided that if rates have been paid for this period April 1 to October 1, repayment should be made by the authorities to the person who has so paid.

Where rates have not been paid, a notice was to be issued by the authority acquainting the ratepayer of such exemption from rates, with the proviso that if such hereditament was afterwards found not to qualify as "agricultural," then the rates would become payable.

The test as to what constitutes an "agricultural hereditament" was to be the inclusion in the Special Lists prepared to operate from October 1. Where the Revenue Officer and Rating Authority are in disagreement, as explained earlier, the withholding of such payment of rates would still operate until a decision was given.

If premises are down on Special Lists, and the Rating Authority or Revenue Officer question the presumption that such premises are Agricultural during the half-year April 1 to October 1, they can apply to the Assessment Committee for a decision. If the Assessment Committees agree with the objection, a certificate will be issued giving the exact dates when such premises were "Agricultural," or stating that they were not such for any part of this half year. If it was "Agricultural" for the whole of the period, then no certificate will be issued, the presumption being it was proved that it was such, and rates can be withheld. If an hereditament is not shown on the Special Lists, application can be made by the occupier for such inclusion, and for the exemption from rates to operate from April 1 to October 1, to the Assessment Committee, any time before November 1 next.

Agricultural Selected Traffics.—Under the Freight-Transport Section, the rebate of seventy-five per cent. allowable, must be passed on to the user, by the reduction of carriage charges on certain selected traffics. By the railway rates anticipation scheme, certain reduction in freights took place from December 1, last, but when this portion comes completely into force as from October 1 next, freights should be lower still for the following :—

Manure, street, stable or farmyard, in bulk; manures, other than street, stable or farmyard, in bulk; used in Great Britain.

Lime, limestone, chalk, basic slag and salt for use as manure; any other substance for use direct as manure, or any manure substance to be mixed and used as manure, when packed and so consigned; used in Great Britain.

Grain, ground or flaked; oil cake, whole, broken or ground; meals or husks, in cases, casks or sacks; foods consisting of meals, with spice, molasses or condiment; milling offals, included in the grain list in the Classification of Merchandise; treacle delivered direct to farmers; ensilage; hay; hay or straw, chopped; provender, consisting of chopped hay or straw, mixed with articles included in the grain list in the Classification of Merchandise for conveyance by railway; Beetroot pulp (residue from sugar-making); Carrots, Mangel Wurzel, or Turnips, in bulk; grains, brewers' or distillers' (or draff); used in Great Britain for livestock or poultry feeding.

Potatos, except new Potatos as defined in the Classification of Merchandise for conveyance by railway.

Milk (including separated milk, but not condensed or dried milk).

Live Stock. *F. T.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

THERE is no more lovely colour among September flowers than the soft blue, faintly tinged with violet, displayed by a form of Cynara which has been here for many years. It seems to differ from the ordinary esculent Globe Artichoke only in its hard, thorny involucre; but it may be a different species, entered in the Kew *Hand List* as Cynara Cardunculus, L., with which I am not acquainted, nor have I any authority at hand to enlighten me. I would be grateful for information about it.

Mention of the Globe Artichoke brings to mind a slip which the late Canon Ellacombe made in his *Plant Lore and Garden Craft of Shakespeare*. After quoting Falstaff's ejaculation when he met Mrs. Ford and Mrs. Page in Windsor Park—

> "Let the sky rain Potatoes: let it thunder to the tune of Green Sleeves, hail kissing comfits and snow Eringoes!"

He proceeds—

> "I am inclined to think that the vegetable he [Falstaff] wished for was the Globe Artichoke, which is a near ally of the Eryngium, was a favourite diet in Shakespeare's time, and was reputed to have certain special virtues which are not attributed to the Sea Holly, but which would more accord with Falstaff's character."

It is strange that a botanist and gardener of such experience as Canon Ellacombe should have erred in describing the Globe Artichoke and the Sea Holly as nearly related, seeing that the former belongs to the Composite Order and the latter to the Umbellifers. The error would not be worth recalling, were it not that Falstaff's prayer for "eringoes," meaning the Sea Holly, whereof the candied roots came, through another blunder, to be esteemed as an aphrodisiac. Pliny the Elder raked uncritically into his discourse on plants all current beliefs in their virtues and vices. In treating of Eryngium, the Sea Holly, he declares it to be a remedy for snake bites and other poisons, but has not a word to say about its amative properties, which he assuredly would have done had such been popularly attributed to it. On the other hand, he describes Eruca (a native of the Mediterranean region belonging to the Cruciferae or Cress family, and known in modern botany as Eruca sativa) as a strong aphrodisiac, and this plant is extolled as possessing that property by the classical writers Ovid, Martial and Columella. It was through confusion between the names Eruca and Eryngo that the inoffensive Sea Holly became credited with qualities which it never possessed.

Trees and shrubs vary very much in being able to flower and bear seeds with equal profusion in consecutive years. Double-flowered Hawthorns show no variation in that respect, because they bear no seeds, but the single-flowered form claims a season's respite after a heavy crop of haws. It is one of the merits of Eucryphia pinnatifolia and E. cordifolia that they never vary in that respect. Year after year they are loaded with blossom, which is followed by plenty of seeds, yet the plants never betray any symptom of exhaustion. Among seedlings of E. pinnatifolia there are always some which bear double flowers, which are no improvement on the type, for the singular grace of the blossom is marred, although the display is somewhat prolonged beyond that of the single-flowered plant. *Herbert Maxwell, Monreith.*

THE GENUS PRIMULA.

(*Continued from p.* 205.)

REIDII (Duthie). Reid's P.
(Soldanelloidae).

THIS exquisite Himalayan species is a perennial, but gives the best results when treated as a biennial in cultivation. It produces a tuft of membranous, broadly lance-shaped, blunt leaves from two to three inches long, tapering to a winged stalk shorter than the blade; margins coarsely toothed or lobulate; upper surface convex, very deeply divided by the larger nerves as though blistered, covered with lax, white hairs; underside very hairy. Flower stem erect, three to four inches tall, coated with white meal and bearing an umbel of three to ten ivory-white, nodding, nearly stalkless blossoms. Corolla five-eighths- to one inch across, concave, with broadly oblong, notched lobes with a tooth in the notch; tube cylindrical, dilated upwards, about as long as the calyx. Introduced in 1884. *Gard. Chron.*, 1911, Vol. XLIX, p. 195, Fig. 87. *Bot. Mag.*, t. 6,961.

Grows in glacial moraines and damp, rocky soil in the Garwhal and Kumaon Himalayas, at 12,000 to 13,000 feet above sea-level.

Culture: Grow it in limestone chips, peat, and a little fibrous loam, well-drained, with abundant underground moisture when in growth; protect from damp in winter. It gives the best results under frame cultivation.

REINII (Franch.). Reini's P.
(Reinii).

A desirable deciduous perennial species with a tuft of rounded or kidney-shaped leaves one to three inches across, deeply heart-shaped at the base, borne on stout, rounded, hairy stalks one inch to four inches long; margins deeply lobed and toothed; both surfaces clothed with long, pale-coloured hairs. Flower stems four to six inches tall, stout, hairy, bearing an umbel of two to six lilac or pale violet blossoms, with a yellow eye, on fairly long stalks. Corolla about one-and-a-half inch across, divided into five broadly wedge-shaped, deeply and broadly notched or bifid lobes with rounded angles; tube cylindrical, about five-eighths-of-an-inch long, more than twice as long as the calyx. In cultivation in 1915. *Gard. Chron.*, 1915, Vol. LVII, p. 214, Fig. 66.

Grows in damp, shady places on Mount Haksan, in the province of Kanga, Nippon, Japan.

Culture: Good, fibrous loam, leaf-soil and limestone chippings, in a cool, sheltered part of the rock garden, with protection from damp and severe frost, are the conditions indicated.

reptans (Hook. f.). Creeping P. (Minutissimae).

A beautiful, prostrate perennial species with a creeping stem clothed with minute tufts of non-mealy, deep green foliage. The leaves are from one-sixth- to a quarter-of-an-inch in length, with rounded, convex blades cleft one-third of the way down into several lobes or coarse teeth, giving the blade a palmate appearance; it is suddenly contracted into a stalk about a quarter-of-an-inch long; both surfaces clothed with minute down. Flower stem obsolete or very short, with very short stalks bearing one or two erect, pale purple blossoms half- to five-eighths-of-an-inch across, with broadly heart-shaped, deeply notched or bifid lobes with rounded angles; tube about three-eighths-of-an-inch long, cylindrical below, with a narrowly funnel-shaped mouth. Flowers in July.

Grows in stony, alpine pastures among very short herbage, near the Bargi-Kang Pass and Bargila, in the Kumaon and Kashmir Himalayas, at 14,500 feet above sea-level.

Culture: As for P. minutissima, not difficult to grow (see *Gard. Chron.*, July, 1928, p. 49). *A. W. Darnell.*

(*To be continued.*)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)
(*Continued from p.* 210.)

ENGLAND, S.

Hampshire—The sharp winter frosts damaged the Strawberry plants very severely, all foliage being cut entirely off, and many plants killed outright. Consequently those plants that did survive were weakened. This was followed by dry spells, particularly after the fruits had set, when rains would have assisted so much. The rainfall up to July 1 was 9·75 inches less than to the corresponding date of last year. Raspberries, Gooseberries and Red and Black Currants have carried very fine and heavy crops. Plums on walls are good, as are Pears in a like position. Apples when just in full bloom experienced two very cold nights with rain and much wind; still, Lane's Prince Albert, Bramley's Seedling, Lord Grosvenor, Wealthy, Mère de Ménage, Early Victoria, Blenheim Pippin, Miller's Seedling, Lady Sudeley, Beauty of Bath, Warner's King, Golden Spire, and others, are fruiting well. Cox's Orange Pippin in this district will be a very short crop indeed; fortunately the trees are making most luxuriant growth. *George Ellwood, Swanmore Park Gardens, Swanmore.*

—— The fruit crops here, generally, are good, Apples especially so, for nearly all varieties are carrying good crops; the trees are clean and the best sorts are Lord Grosvenor, Worcester Pearmain, Ribston Pippin, Charles Ross, King of the Pippins, Newton Wonder, Gascoyne's Scarlet, Bramley's Seedling and Lane's Prince Albert. Most varieties of Pears are carrying fair crops. Plums are bad—the worst for several years, although the trees flowered well. Cherries were a fair crop, and the trees are clean, while Peaches and Nectarines are light but very good. Strawberries have been very good, for the fruits, although not large, were of grand quality. Small fruits were very good, especially Gooseberries and Raspberries. Black Currants were light but of good quality. The soil here is a medium loam on limestone. *George Summersell, Buriton House Gardens, Petersfield.*

—— The fruit crops in these gardens and throughout the surrounding district are, on the whole, very good. Apples are an average crop, and the fruits and trees are clean and healthy. Pears are abundant, most sorts yielding well. Plum trees are looking well, and most varieties have a good sprinkling of fruits. Peaches and Nectarines on walls are the best crop for several years, and the trees are entirely free of leaf-blister. Strawberries were practically a failure again, late frosts playing havoc with them when in bloom. All small fruits fruited well, Black Currants especially, also Raspberries, of which the variety Lloyd George has a very heavy crop. *A. J. Legge, Dogmersfield Park Gardens, Winchfield, Basingstoke.*

—— On the whole, the Apple crop is below the average, although early varieties—Irish Peach, Lord Grosvenor, Lady Sudeley—are carrying heavy crops; mid-season and late varieties suffered severely from the late frosts. In sheltered positions in the orchard, the most noticeable varieties for quantity are Annie Elizabeth and Dumelow's Seedling. Peaches and Pears on walls are carrying their usual good crops, as these were protected during the flowering period. The soil here is deep loam over flint and chalk, with patches of light clay in various parts of the garden. *J. A. Rogers, Hackwood Park Gardens, Basingstoke.*

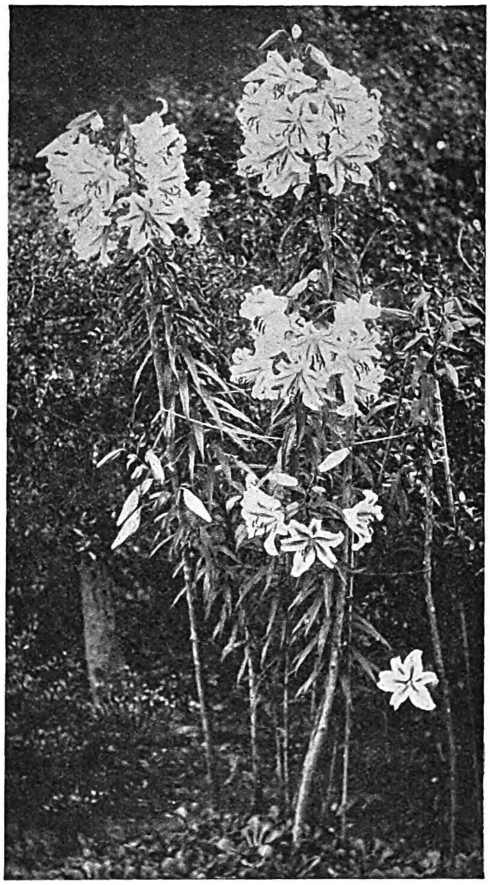


FIG. 114.—LILIUM AURATUM.

——The fruit crops in this district are not so good as usual, but in these gardens Apples are an average crop. The best croppers are Keswick Codlin, Lane's Prince Albert, Cox's Orange Pippin and James Grieve. Pears are an average crop, so also are Plums; of Cherries, Morellos were the best. Raspberries and Black and Red Currants fruited heavily, but Strawberries were very poor, both in quantity and quality. The dry weather was the chief cause of the failure of this crop. The soil here is heavy clay. *William George Osborne, Sutton Manor Gardens, Sutton Scotney.*

Kent.—It is chiefly owing to the lack of rain and the soil being of a sandy nature that the Strawberry crop was poor this year. Peaches and Nectarines on walls have fruited exceptionally well, and this year needed thinning. I think the poor crop of Plums is due to the fact that they fruited so heavily last year. All small fruits cropped exceedingly well. *G. R. Pierce, Huntleys Gardens, Tunbridge Wells.*

—— Among Apples, Bramley's Seedling, Lane's Prince Albert, Grenadier, Worcester Pearmain, Early Victoria and James Grieve are all carrying full crops; Cox's Orange Pippin, average; and Newton Wonder, Bismarck, Rival, and Annie Elizabeth, under average. Emile d'Heyst, Conference and Fertility Pears have full crops, but other varieties are poor. Plums are very variable, Czar, Giant Prune, Yellow Egg and Belle de Louvain all have fairly heavy crops, but Victoria, River's and Purple Egg, are poor. Drought was undoubtedly responsible for the low yield of Raspberries, while the severe winter, followed by drought, greatly affected the Strawberry crop. The soil at this station is light loam overlying Kent ragstone. *R. G. Hatton, Research Station, East Malling.*

(*To be continued.*)

HOME CORRESPONDENCE.

Lilium auratum.—I enclose a photograph of my Lilium auratum (Fig. 114), which may interest your readers. In spite of the drought, and the hard winter—we registered 20° of frost—it is flowering splendidly. The two bulbs were planted nearly five years ago, behind some shrubs facing north, so that the roots are always in the shade. There are seventy blooms on the six heads, the tallest of which reaches seven feet, and carries twenty-one flowers. *M. S. Roberton, Harraby Green, Broadstone, Dorset.*

American Method of Rooting Cuttings.—I was interested to read Mr. Everett's account of the American way of rooting cuttings (August 24, p. 154). The same method has, I believe, been in use in many English nurseries for a number of years. Shortly after the war, upon leaving college, I was working at a hardy plant nursery in Yorkshire, where this method was in constant use for all kinds of cuttings. In particular, the use of a straight-edge or knife blade was employed not only for the placing of cuttings, but also, upon occasion, for the pricking out of seedlings. I have myself constantly used a straight-edge in the disposal of seedlings in the open in my garden. I understood at the time that this method was an old north country labour-saving device, the nursery in question being an old-established one, having been in the hands of members of the same family for over one hundred years. *Vera F. P. Day, N.D.H.*

——In his interesting notes under this heading in your issue of August 24, p. 154, Mr. Everett gives some very convincing facts, and one instinctively wonders why such a method is not adopted in English gardens. So far as Pelargoniums are concerned, it does seem possible that the insertion of cuttings in heat at this time of the year means that the winter-housing of the consequently quickly-rooted cuttings is a far more expensive proposition than our present method of keeping them under cooler conditions. Particularly would this be noticeable where large quantities have to be raised. At the Borough Cemetery here (Cambridge) many Pelargoniums are used for the summer planting of graves, and our usual method is to select cuttings for this purpose from the potted-up stools of the previous summer. These stools, on being returned from the beds about the town in October, are potted and placed in a frost-proof greenhouse and little water given. In February, the house is made warmer and by the end of the month young growths begin to appear on the old stools, which growths, so soon as they have made three good joints or nodes, are taken off, placed singly in three-inch pots containing a very sandy compost, and taken to a house in which the temperature does not fall below 60°F. Here the pots are placed on planks over hot-water pipes along the back of the benches, and their further treatment consists of frequent sprayings and the removal of the pots to a sunny shelf near the glass when the cuttings are rooted. We find this method particularly suited to cuttings of the variegated-leaved Pelargoniums, such as Mr. H. Cox, Mrs. Pollock, Happy Thought, Mrs. Quilter, Caroline Schmidt, etc. *W. Howell, Cambridge.*

An Excellent Indoor Peach.—Quite our best mid-season Peach, both here in Buckinghamshire and down in Gloucestershire, is Peregrine; the fruits are finely coloured, of first-class flavour and good size, and it is a very reliable cropper. The tree grows well on most soils. The fruits are, perhaps, a trifle soft for packing purposes, and they need careful handling when picking, but generally they pick well, when ripe. The tree carried good, healthy foliage, and is quite an easy variety to grow, not being so indifferent to general treatment as some other varieties. Here it receives cool house treatment. *G. H. Emmett, Taplow Court Gardens, Taplow, Bucks.*

FOREIGN CORRESPONDENCE.

FASCIATION IN LILIUM AURATUM.

The article re Lilium auratum in your issue for August 17 (p. 126), in which the writer reports a plant with a fasciated stem producing forty-eight perfect flowers, causes me to send you herewith an article written by me in 1891, and published, with a picture, in the *Deutsche Gärten Zeitung*, in which the ordinary Lily stem shows twenty-two buds and flowers, and the fasciated stem 113 buds and flowers.

I had, last year, here in my garden in Heidelberg again such a plant, which likewise showed a fasciated stem with a great many blossoms, but nothing like the one I had so far back as 1891. *Alfred Unger, Heidelberg.*

[The illustration referred to by Mr. Unger shows an extraordinary example of fasciation.—Eds.]

MAZUS STOLONIFER.

Among the Gratiola tribe of Scrophulariaceae, Mimulus and Torenia are widely known, but the lovely genus Mazus is not so familiar in gardens. Mazus is distributed in Australasia and Asia, where Japan has two species, viz., M. japonicus and M. stolonifer. The former is annual, while the latter is perennial, and is superior to the former in beauty.

M. stolonifer is of spreading habit, with, as the name suggests, slender, creeping stems, which root at the nodes and form a close ground-cover. The leaves are small and elliptic in shape, while the radical leaves are somewhat larger, oblanceolate, and of a pleasing shade of green. The flowers, which are produced continually from spring to summer, are one-and-a-half centimetre in width, and produced in subsecund racemes. The colour is purple, with a white central blotch on the yellowish-brown lower lip.

This moisture-loving plant grows on the margins of streams where the soil is not always saturated, but the flowers in somewhat shady places are darker and more lovely than those in sunny positions. There is a white-flowered variety.

Mazus is easily propagated by means of seeds or by cuttings, which root readily. In England it might, I think, be useful as an edging in the cool house. I am sure it would make a most lovely and floriferous subject for this purpose.

GENTIANA ZOLLINGERII.

This tiny biennial Gentian is very lovely. In the Pine and Oak (Quercus serrata) woods, where the sun penetrates freely, it pushes out, here and there above the fallen leaves, stems which cover the ground. The soil is clayey loam and it grows in association with Asarum asaroides and Chloranthus japonicus.

The stems of this Gentian are three to six centimetres long, furnished with dark green, broad, ovate, thick leaves, 1½ c.m. long by 1½ c.m. wide at most, the under surface being pinkish-purple. The flowers, borne one to five on the stem, are about 2½ c.m. long by 2 c.m. in diameter, having five lobes, of a fine blue, with a streaked throat. In Japan, G. Zollingerii comes into bloom in April. Although this is still a comparatively rare subject in gardens, it deserves wide notice. *K. Yashiroda, Tonosho, Kyoku, Kagawaken, Japan.*

SOCIETIES.

NATIONAL DAHLIA.

September 11.—The annual show of this special flower Society, which was held in the new Horticultural Hall, Westminster, was very successful. Following immediately after the R.H.S. Show, it must have entailed a deal of anxiety and hard work to have the spaces ready for the exhibitors. But it was done, and the show was ready for the official opening at the appointed hour. The quality of the blooms was very good, and the trade groups and decorative classes were particularly attractive; while the number of exhibitors was as usual in the open classes, there seemed to be an increase of amateurs, which must have been very gratifying to the management. The Joint Dahlia Committee met in the morning and selected the following novelties for trial at Wisley.

Glint.—A Charm Dahlia of orange-scarlet colouring.

Senley.—A velvety-crimson Charm Dahlia.

Lurid.—A glowing scarlet Charm Dahlia.

Claret.—A small Decorative variety of dull pink colour freely lined with claret.

Dora.—A reddish-maroon Charm Dahlia of paler colour at the margins. The above varieties were shown by Messrs. Burrell and Co.

Mrs. A. Brenls.—A medium-sized Decorative variety of bright pinkish-mauve colour. Shown by Messrs. W. Topsvoort, Ltd.

Florence M. Davies.—A large Decorative of orange colour, flushed with rose-pink. Shown by Messrs. W. Treseder, Ltd.

Frau O. Bracht.—A large, clear primrose-coloured Cactus variety.

Katherine Valentine Smith.—A garden Cactus variety of bright mauve colour with a white centre. This and the above variety were shown by Messrs. F. J. Ballego and Sons.

Jamboree.—A large, scarlet-crimson Decorative variety. This and the following were shown by Messrs. J. Stredwick and Son.

Avis Cowdrey.—A large, white Cactus variety.

Laconia.—A large Decorative variety of pale lilac colour, with faint lines of a deeper shade.

Open Classes.

The two classes for Show and Fancy Dahlias were not well filled, although Messrs. W. Treseder, Ltd., the only exhibitors, were awarded the first prize for twenty-four very shapely varieties, which included Harbinger, Standard, Charles Wood, Mrs. W. Slack, Harry Keith, W. Clark and Gracchus. Only Messrs. J. Cheal and Sons showed twelve blooms, and they were awarded the first prize for a moderate exhibit.

The only exhibit of bunches of twelve distinct Cactus Dahlias was a good one by Mr. H. Woolman, whose varieties included Sydney S. Jackson, Patriot, Sydney Jones and Mary Purrier. Mr. Woolman was also alone in the class for twenty-four Cactus Dahlias, shown on boards, and here he had excellent specimens of Yellow Bird, Patriot, Silverhall Park, Edgar S. Jackson, Grasmere and others, which fully deserved the first prize. Messrs. W. Treseder, Ltd., were first with twelve good Cactus varieties, such as Mammoth, G. H. Barlow, Virginia, Elite and Edgar S. Jackson. Mr. Valentine Smith, who was second, showed good examples of Mrs. Gillet, Mary Murray and John Riding. In the class for six blooms of one Cactus Dahlia, Mr. H. Woolman was first with splendid blooms of Fire-dancer, of rich orange-scarlet colour. Mr. J. I. Ingold, Boston, was second. Messrs. J. Cheal and Sons were awarded the first prize for twelve attractive vases of garden Cactus Dahlias. The varieties included Elsie Prior, Edgar Jackson, Miss Eckhart and Guardian.

The Pompon Dahlias were very dainty and fascinating. Messrs. J. Cheal and Sons had the best twelve varieties, showing Glow, Little Beeswing, Little Jim, Mars and Censor, with others equally good. They were also first with twelve excellent Star Dahlias of such sorts as White Star, Gatton Star, Golden Star and Horsham Star. The best twelve Single Dahlias were also shown by Messrs. J. Cheal and Sons, who had Marion, Little Jennie, Mrs. J. F. McLeod and Brilliant, of perfect shape. Earl Beatty (gr. Mr. Barrett), Reigate Priory, who was second in each of the three classes, was first with six exceedingly good Collerette varieties, showing Bonfire, O. M. Courage and Cadet of fine form. Messrs. W. Treseder, Ltd., were second. Messrs. J. Cheal and Sons were the only exhibitors of twelve Collerettes.

First prizes were won by Messrs. J. Cheal and Sons, with six varieties and two vases of good, small Paeony-flowered varieties, and with six vases of small Decoratives, where they had excellent blooms of Mrs. D. Campbell, Lowfield Maroon, Cheerful and Miss Trist. Messrs. W. Treseder, Ltd., who were second, were first in the class for twelve large Decorative varieties, where they showed handsome blooms of El Grande, Halvella, F. T. D. and W. D. Cartwright. Mr. H. Woolman was a good second. Messrs. J. Cheal and Sons were first with a moderate exhibit of six varieties of large Paeony-flowered Dahlias.

The Monro Challenge Cup induced very good competition, although all the blooms that were staged were not exactly "suitable for market purposes." Some were decidedly too large and set on unduly long and thick stalks. But Mr. J. Emberson, who was again first, set up an admirable exhibit of twelve varieties of ideal market flowers. He included Mrs. Linford, Feodora, Cheal's Pink, Reg. Godfrey, Snowdrift and Crimson Flag. Mr. J. B. Riding, who was second, had good and typical blooms of E. Liedling, Blanche Rowland and Persis.

Amateurs' Classes.

Two very good exhibits of Show and Fancy Dahlias were staged. Mr. H. Langdon, Shenfield, Middlesex, who was first, included Miss Browning, Merlin, Standard, Mrs. Langtry and Henry Clark. Mrs. T. Wright, Winkfield, was second. Mr. A. N. Clark, Bromley, was an easy first in the class for six varieties, and he included Tom Jones, Mt. Blanc and J. B. Cambe. The Rt. Hon. W. Dudley Ward, Sunbury, was an easy first with six varieties of Cactus Dahlias, where he included Edgar S. Jackson, M. Purrier, J. Emberson and Abbotsford, of considerable merit. He was also first for six varieties in bunches of three's, and here he showed Torchlight, Ethel and Canary, of high quality. Dr. C. J. Welch, Sandy, was second. Mr. W. G. Cramp had twelve excellent first prize Cactus blooms on boards, and his very best were Yellow Bird, Edgar S. Jackson and Mammoth. Mr. Valentine Smith was second. Mr. F. Chennells, Wheathampstead, was first with three blooms each of four varieties, with splendid examples of Champion, Valour, Mrs. W. Jackson and Rev. Y. Weaver. Mr. W. G. Cramp was a good second. Mr. J. I. Ingold had the best six varieties. As in the open classes, the Pompon Dahlias were of high quality. The competition was very good in the class for twelve varieties, where Mr. C. Luckin, who was first, included Daisy, Glow, Madeline and Johnnie. Mr. A. N. Clark was a good second. Mrs. T. Wright was first in the class for six varieties, and she included perfect examples of Cyril, Darkest of All, Glow and Princess. Mrs. Fisher was second. Earl Beatty, showing Marcel, Sunray and Columbine, of perfect shape, was first with twelve Single Dahlias, and Mr. A. Brown, who had Klondyke and Grace Graham of excellent type, was first in the class for six Singles. Earl Beatty was the most successful exhibitor of Star Dahlias, his six good varieties including Surrey Star, Haslemere Star and Gatton Star. Mr. C. Luckin was second. Mrs. Oakley Fisher had the best three vases.

The Decorative Dahlias were of very good quality. The Rt. Hon. Dudley Ward was first with nine handsome vases. Mr. G. F. Drayson, Buckhurst Hill, showing beautiful blooms of Elite, Glory, Sola Mio, W. D. Cartwright and Mabel Lawrence, was first in the class for twelve large varieties, and, with equally good blooms of Golden Fleece and Marmion, was also first with four vases. Mr. C. Luckin was first with six varieties of small Decoratives and miniature Paeony-flowered varieties arranged with suitable foliage. Mr. Valentine Smith had the best large Paeony-flowered varieties.

The Decorative classes were well filled, and included many artistic arrangements. In the open classes, Mr. J. Emberson was first with a handsome vase of Dahlias and foliage, and Mr. A. J. Cobb was second. Mr. C. Luckin had the best of many bowls of Dahlias, and Mr. Cobb was again a good second. Of the seven dinner table decorations of Star Dahlias, the best was arranged by Mrs. E. J. Cooper, Warlingham, who used Epsom Star very effectively. Miss Woolven had the first prize table of Mignon Dahlias, and Mrs. Courtney Page was first with a pretty table in the class for other types of Dahlias. There were many attractive exhibits of three bowls of Dahlias suitable for sideboard decoration, and Mr. D. B. Crane was first, with Mr. J. Emberson second. In the ladies' classes, Miss Woolven was first with a splendid basket of scarlet and red Dahlias and autumn foliage, with a handsome vase, and with a beautiful bowl of Dahlias.

NON-COMPETITIVE EXHIBITS.

The trade growers of Dahlias were greatly in evidence, and the walls of the hall were lined with many striking groups; it is a great pity that it was not found convenient to remove the background material between the pillars for, had this been done, a much better general effect would have been obtained.

One of the most striking groups of Dahlias was that set up by Messrs. Dobbie and Co., who made special features of Paeony-flowered and Collerette sorts, staging many grand representatives of both these classes; prominent among the former were Alexandra, glowing orange-red; Doreen, rich pink; Midas, primrose; Dazzler, scarlet; Chelsea and Lilian C. Page, while outstanding Collerette Dahlias were Scarlet Tuskar, Trossachs, a grand white; Glen Scannox, crimson-scarlet, cream collar; Betty, Lochnagar, deep velvety-crimson, white-flecked collar; Scarlet Queen, Tuskar, Arran and Vera. A basket of grand blooms of the rich scarlet-crimson Reginald Godfrey was set in the centre of the group, while other striking sorts included Seafield, Jersey Beauty, the brilliant Ullswater, White King, Feodora, Mrs. H. C. Drusselhuys, Golden Queen and Andreas Hofer.

Messrs. H. J. Jones and Mr. H. Woolman shared the wall space at the end of the hall, and both set up very handsome groups, that arranged by the former firm being nicely finished off with Maidenhair Fern and containing grand pillars of such large-flowered Decorative sorts as Canberra, Red Emperor, Mabel Lawrence, Rayonnante, Polar Bear, Hera and W. D. Cartwright. There were masses of blooms of Reginald Godfrey, Cavalier, Jersey Beauty, Mrs. C. H. Drusselhuys, Ferdinand de Bois, Homeric and Tommy Atkins, while among the Pompon Dahlias, Fashion was worthy of note.

In Mr. H. Woolman's group, the large sheaves of W. D. Cartwright, Grace Curling, Rosa Taylor, Trentonian, Jack Hobbs, Pride of San Francisco (very fine), E. Vanderveer; and among Cactus sorts, Harry Strutt, rich crimson-scarlet; Southport, yellow, shaded bronze; and E. J. Robins, called forth much admiration, while he also showed Ullswater, Pink Pearl, Shining Sun, Toplight, Rapallo and such dwarf bedding sorts as Mrs. W. Clarke, Amber Gem, Lady Aileen and Dinkie, extremely well.

The exhibit set up by Messrs. J. Cheal and Sons was a trifle flat, although there were good baskets of Mignon varieties, notably Daphne, dark velvety crimson; Peter Pan, scarlet; Lady Aileen, Blanche, Daffodil and Kathleen. Other Dahlias noted in this group were King Harold, Leslie Hancock, Queenie, President Wilson, Joyce Goddard and Andreas Hofer.

Messrs. Carter Page and Co., Ltd., staged grand blooms of such large-flowered Decorative sorts as Jersey Beauty, Prestige, The Prince, a fine deep scarlet; H. B. May, Menny Carlee, a good white; Fireman, Trentonian and Canberra, while their outstanding Cactus varieties were La Lorraine, Trophy, Andreas Hofer, Peerless, Harry Strutt, Joyce Goddard and Johannesberg.

Mr. J. B. Riding showed large-flowered Decorative sorts chiefly, among his best being Starlight, Berengaria, Raphael, Neptune, Grace Curling, Marmion, Hera, The Nigger W. D. Cartwright, El Granada and Carnival; his group was lined in front with various choice Paeony-flowered and Mignon sorts.

As usual, the Dutch Dahlia Society was responsible for the setting up of a collection of choice novelties from Holland, chiefly large-flowered Decorative Dahlias. They included Mr. A. Breuls, rich rose-pink, shading paler; Pucella, white, with incurving, curled petals; Luxor, deep velvety crimson; Chemar's Masterpiece, lavender-rose, with large, curled petals; Edegem, rich primrose; Saturnus, light brick colour; White Wonder, Réve d'Or, after the colouring of Prestige; Royal Velvet, rich deep scarlet, very fine, and Royal Pink. The only Dutch firm to stage a group was Messrs. J. G. Ballego and Sons, who showed some striking large-flowered Decorative sorts. Among these we noted Katherine Valentine Smith, pink, white centre; Schwerin's Wahl, smoky-bisquit; Frau O. Bracht, enormous, pale primrose; and Jane Cowl, light yellow, tinted copper.

Large-flowered Decorative and Cactus varieties constituted the chief features in the exbihit set up by Messrs. Jarman and Co., of the former Amein Ra, Menin, Berengaria, Mrs. Stuart Sandeman, Josephine Adair, a good primrose; Trentonian, richly-coloured; H. B. May and Evelyn Hancock being the most striking. Good Cactus sorts included A. E. Amos, Peerless, J. T. Cowan, Ballet Girl, Harry Strutt and J. Emberson. They also showed Rapallo and Falstaff in grand form.

The notable sorts in the extensive collection arranged by Messrs. H. Langridge and Co. were Mammoth, Golden Queen, Cardinal, Jersey Beauty, Brentwood Yellow, Persis, Leslie Hancock, Orange Boven and Couldson; Mr. Charles Turner included good blooms of several large-flowered Decorative and Cactus sorts in his small collection, while in the representative group set up by Mr. S. J. Goodliffe, specially noted sorts were Mrs. A. Harvey, Tangerine, Joan Fife, John, Glory, Mrs. C. H. Drusselhuys, Rapallo and Joyce Goddard.

Messrs. James Stredwick and Co., as usual, staged grand specimen blooms of first-class large-flowered Decorative sorts chiefly, included among which were R. Findlay, rich primrose; Flying Officer Waghorn, large, curled petals, glowing velvety-red, paler on the reverse, with a Plum sheen; Grace Curling, Daily Mail, Carmania and Menin.

In his attractively arranged group, Mr. W. Yandell showed Mabel Lawrence, Golden Sun, Red Emperor, Yellow Bird, Border Perfection, Rapallo, Locarno and Champion, in good condition, while notable sorts in the extensive and representative collection set up by Mr. J. T. West were Jersey Beauty, Titan, Berengaria, Mabel Lawrence, very fine; Mr. John Emberson, White King, Blanch Rowland, Negress, Tiny, very dainty; Rapallo and Ullswater. He also showed numerous Pompon varieties.

The King's Acre Nurseries, Ltd., had a nicely arranged group in which were striking pillars of Golden Sun, Red Emperor, Hera, Andreas Hofer and The Clown. Jersey Beauty, Joyce Goddard and Dempsey were shown well, while Pompon varieties included Fashion, Dora, Gretchley Heine and Titan.

BRADFORD GARDENERS'.

Members of the Bradford and District Gardeners' Association spent a most enjoyable afternoon on September 7, when, by the kind invitation of Mr. J. Slater, they paid a visit to his nurseries at Chapel Hill, Skipton. The party first visited his shop at Belmont Bridge where was a great display of Gladioli, grown at Chapel Hill. On arrival at the nurseries they were escorted by Mr. Slater and his two sons, who spared no efforts to interest and instruct the members. The nurseries were wonderfully clean and the stock particularly healthy. After two hours spent in the nurseries, the members adjourned for tea, after which, on the proposal of Mr. Kelk, of Calverley, Mr. Slater was heartily thanked for his kindness, and in reply said it had been a great pleasure to him to receive a visit from the Bradford and District Gardeners, and he hoped to see them again when he would arrange for visiting other places of note in and about Skipton. Mr. Slater's sons both made delightful little speeches, and wished the Association every success.

ROYAL CALEDONIAN HORTICULTURAL.

At a meeting of this Society, held at Edinburgh recently, and presided over by Mr. J. T. Jeffrey, Superintendent of Parks, the members were addressed by Mr. A. J. Macself, on "Some Post War Developments in British Horticulture." The most important feature, he observed, was the increase of new houses, all with garden space attached. This means that a great proportion of the new horticulturists are novices, and the greatest demand is, therefore, for plants of easy culture, that will thrive and make good without special care or conditions. The families of plants which have shown greatest advances include such free-growing subjects as Lupins, Irises, Gladioli and Delphiniums. Delightful strains of easily grown subjects, such as the Bartley strain of Primula pulverulenta and the Shirley Foxgloves have been evolved by the process of careful selection, and he urged the further pursuit of plant improvement by selection rather than the crossing of strange species to produce hybrids. On the scientific side, the introduction of tar-distillate washes and Potato breeding came under observation, and the hope was expressed that in straining after that which is new we should not permit ourselves to lose grip of that which is essentially good in the old.

On the proposal of Mr. W. Cuthbertson, a vote of thanks was given to Mr. Macself.

The exhibits included hybrid Coltness Dahlias by Mr. Stewart Sim, The Lodge, Granton House, and Mr. S. J. Cook, Murrayfield, and two large Cauliflowers, each measuring about eighteen inches in diameter, by Mr. Cadell, Brae Lodge, Murrayfield.

Awards were made in the competitive classes as follows:—Two vases of Dahlias, first, Mr. W. Crighton, Mortonhall; second, Mr. S. J. Cook. French Beans, first, Mr. W. G. Stott; second, Mr. R. B. White, both of Murrayfield.

The annual two days' show of this Society was opened on September 11, in the Waverley Market, Edinburgh, by the Countess of Haddington. The schedule contained 239 classes, and the entries in the competitive classes numbered about 2,000, which is slightly in excess of last year's figures, while 1,000 entries were received in connection with the annual exhibition of the National Allotment Federation, which formed an interesting adjunct to the more important event.

A spell of fine weather had been experienced since the advent of September, and its influence was reflected in the quality of the exhibits, and particularly in the colours of the cut flowers. Except in a few instances, the classes were well filled and competition generally was keen.

Interest in the show was accentuated this year by the introduction of two new competitions. The Abol Challenge Trophy was offered for the exhibit which demonstrated the greatest advance in plant breeding since the war, and it was awarded to Messrs. Dobbie and Co., Ltd., for their Orchid-flowered Dahlias, of which there was a magnificent display.

The other competition provided the outstanding feature of the Rose section. What is to be known as the John Phillips Memorial Challenge Trophy, value sixty guineas, was offered along with three money prizes, for six bowls of Roses, not more than twelve blooms and not fewer than six varieties. Effective arrangement was specified as a condition, and the bowls provided by the Society were limited to six inches in diameter at the top. Eight firms were represented, and the winner proved to be Mr. R. C. Ferguson, Dunfermline, whose six varieties were Mrs. Henry Bowles, Mrs. Charles Lamplough, Mabel Morse, Lady Pirrie, Earl Haig and Caroline Testout; Messrs. Thomas Smith and Son were second, and Messrs. Austin and McAslan, third.

The Rose classes were well filled, both in the open and in the gardeners' and amateurs' division, and the quality of the blooms showed an improvement on that of last year. Mr. R. C. Ferguson followed up his success in the more important event by securing first place in the class for six decorated baskets, and he also provided the best twelve red Roses. Messrs. Adam and Craigmyle, Aberdeen, were again strong in the class for thirty-six blooms, and they likewise prevailed over Mr. W. Ferguson in the contest for twelve blooms of new varieties, and defeated Messrs. Austin and McAslan in the class for twelve yellow Roses. Mr. W. Ferguson, however, obtained some measure of compensation by his success over the Aberdeen firm in the class for pink Roses. Mrs. Russell, Mearns, scored heavily in the other classes, being first for two baskets, twelve vases, four vases and twenty-four vases of eighteen varieties.

Cut flowers dominated all other sections of the show. Dahlias made an outstanding colour display, and the individual blooms reached a very high level of quality. In the gardeners' and amateurs' section, the class for four vases of Decorative or Paeony-flowered varieties, and also the class for two vases, were strong, notably the prize lots staged by T. P. Cochrane, Esq. (gr. Robert Grant), Roundebush, Boness. The honours in the other classes were shared by Mr. William Heatlie, Galashiels; Mr. John R. Paterson, Schawbank, Alloa; Mr. George Beattie, Dunfermline; and Mr. R. Robertson, Duns.

The Sweet Pea classes were better filled than they had been for many years, and the quality of the flowers was particularly good for so late in the season. Here the competitions had an unexpected result, Mr. J. Grigor, Banff, only securing second place in the various classes in which he entered. Mr. J. B. Campbell, Newport, was first in the class for twelve vases; Mr. R. Barbour, Morpeth, led for six vases; while Mr. J. Darling, Kelso, excelled in four of the single vase classes.

Carnations were comparatively few in numbers and were not seen at their best. Here the chief prizes for perpetual-flowering sorts were won by Mrs. Mitchell (gr. Mr. W. Aitchison), Furnes, Thurston, Innerwick.

Messrs. George Mair and Son, Prestwick, defeated Mr. D. Whitlaw, Laurencekirk, with twenty-four spikes of Gladioli, which included several promising seedlings, and the latter, who was also second to Mr. A. Penman, Kirkcaldy, in the class for twelve spikes, scored in the class for six spikes and in that for Primulinus Gladioli.

Exhibits of herbaceous plants and annuals furnished variety to the show, and the condition of the flowers was much admired. The Scottish Challenge Cup for a display of single and double Chrysanthemums decorated with Ferns, foliage plants or cut foliage, and occupying a table ten feet by five feet, was won by Mr. J. W. Forsyth, Putteridge, Luton; while Mr. J. D. Duncan, Moredun Nursery, secured first prize for eight vases of early-flowering varieties.

Sir A. McInnes Shaw (gr. Mr. J. McKinnon), Ballochmyle, Mauchline, was first for a collection of cut flowers.

The glory of the pot plant section has departed and it was only in exceptional classes that the awards extended beyond a first or second prize. Mr. P. Reid, Kirkcaldy, defeated Mr. W. Galloway, Davidson's Mains, in the competition for stove or greenhouse plants, but the most successful exhibitor was Mrs. Mitchell, Gilmerton, who excelled with two greenhouse plants, exotic Ferns, Zonal Pelargoniums, scented Pelargoniums, two Fuchsias, one Fuchsia, a flowering plant, a Chrysanthemum in flower, and two Heliotropes.

As usual, fruits were a prominent feature, and the entries for Grapes showed a marked increase. The competition for the Thomson Challenge Trophy was confined to the Marquis of Tweeddale (gr. Mr. A. McBean), Yester Gardens, Gifford, and the Earl of Strathmore (gr. Mr. Donald McInnes), Glamis Castle, but the quality of the fruits was not up to the standard of the fruits exhibited at Southport and Glasgow. For the six bunches of not less than four varieties, each scored their highest points with Muscat of Alexandria, and in the end only two points separated the two, the first-named being credited with 43½ points and the latter with 41½. The Glamis vines produced the best Muscats and Black Hamburgh in the class for four bunches and the best bunch judged for bloom. Mrs. Cree (gr. Mr. C. J. Duncan), Kailzie House, led in both classes for Muscat of Alexandria, while Mrs. Thomson (gr. Mr. T. Vallance), Greenfield House, Alloa, was the most successful competitor in the smaller classes. She was first for two bunches of Black Hamburgh, one bunch of Gros Colmar, one bunch of Madresfield Court, and two bunches of the same variety.

The competition for a table containing nine dishes of fruits resulted as follows:—First, Mr. A. McBean; second, Mr. D. Campbell, Thornhill; third, Mr. William Smith, Dunecht, Aberdeen; and the prize-winners for a collection of nine dishes of hardy fruits were, first, Mr. J. W. Donald, Wooden, Kilson; second, Mr. C. Webster.

There were twenty-six classes for Apples, and the exhibits were so numerous that they filled three long tables. It was one of the best displays ever seen at Edinburgh, and the competition was remarkable for the success of Mr. R. Auldjo, gardener at Makerstoun House, Kelso, who scored in fourteen classes, and this fine record was increased by two first prizes in the Pear section and one for Plums.

The high quality of the vegetable exhibits testified to the favourable season combined with good culture. Potatos, Carrots, Onions, Leeks and Tomatos were particularly fine, and in the thirteen classes for Potatos, Alstair Currie, Esq. (gr. Mr. William Redpath), Holylee, Walkerburn, had a splendid record of nine first prizes.

Some forty-two trade exhibits contributed to the success of the show, and the awards were as follows:—

Large Gold Medals.—The Edinburgh Parks Department (ornamental garden); Messrs. C. Engelmann, Ltd. (Carnations); Messrs. Austin and McAslan (vegetables, Gladioli and Roses); Messrs. Dobbie and Co. (Dahlias, Sweet Peas and Roses); and Messrs. Thyne and Son (Dahlias and herbaceous).

Gold Medals.—Messrs. Allwood Bros. (Carnations); Messrs. Ballantyne and Jackson (Dahlias and herbaceous); Messrs. D. and W. Croll (Roses); Messrs. Dickson and Co. (Roses); Mr. John Downie (herbaceous flowers and hardy fruits); Messrs. Fairbairn and Son (Phloxes and Dahlias); Messrs. John Forbes Ltd. (herbaceous); Messrs. Isaac House and Son (Scabious); Messrs. Laird and Dickson (rock plants and alpines); Messrs. S. McGredy and Son (Roses); Messrs. George Mair and Sons (Gladioli); Messrs. Thomas Methven and Sons (rock garden); Mr. M. Rae (Begonias); Mr. Thomas Robertson (Roses); Mr. T. Smith (hardy plants); Messrs. Storrie and Storrie (fruits and flowering plants); and Messrs. W. Wells, junr. (herbaceous).

Silver-Gilt Medals.—Messrs. M. Campbell and Son (Dahlias); Messrs. Oliver and Hunter (herbaceous); Messrs. Young and Thomson (crazy paving and rock garden; and Mr. R. C. Ferguson (Roses).

Silver Medals.—Mr. W. S. Askew (Ferns); Mr. Thomas Jeffrey (alpines and Conifers); Messrs. Kent and Brydon (cut flowers); Mr. R. Lawrie (Begonias); Messrs. Maxwell and Beale (rock garden); Mr. J. Myles (foliage plants); and Messrs. Tillie, Whyte and Benvie (garden furniture).

Bronze Medals.—Messrs. A. Bruce and Son (Chrysanthemums); Misses Horne (rock garden); and Mr. George M'Glashan (Dahlias).

NATIONAL ROSE.

September 13 and 14.—In spite of the continued great drought, the Autumn Show of the National Rose Society will rank as one of the most successful that has been held. The new Horticultural Hall, Westminster, was filled with excellent blooms, and in most of the classes the competition was good. As usual, the large trade groups were a very delightful feature of the show, and they contained masses of particularly good blooms. New Roses are rarely, if ever, especially noteworthy at the Autumn Show, and the present occasion was no exception to the rule, for, while a considerable number were submitted, only three Certificates of Merit were awarded. We understand that no award will be made this year of the Clay Cup or the Cory Cup, as the Council of the Society considered that there was no novelties shown during the year worthy of the awards.

Certificates of Merit.

Golden Dawn.—This we consider to be the best of the novelties. It is a full double H.T. variety of good shape and particularly fragrant. It is stated to have been raised by crossing Elegante with Ethel Somerset. The broad, substantial, recurving petals are of pale yellow colour, lightly flushed on the outsides with the old rose colour found on some of the true Tea Roses. It is of vigorous habit and appears to be a desirable all-purposes variety. Shown by Messrs. D. Prior and Son, Ltd.

D. T. Poulsen.—A robust, dwarf Polyantha Rose of erect habit, recommended as a bedding variety. The semi-double flowers are about two inches across and of glowing, light crimson colour. The foliage is neat and dark green. Shown by Messrs. Wood and Ingram.

James Gibson.—A rich, velvety crimson, fully double H.T. variety of good form. When first fully expanded, the flowers are quite good but the outer petals soon become magenta-coloured around the margins. It is of free, bushy habit, and the foliage is purplish. Shown by Messrs. S. McGredy and Sons.

Other Novelties.

The best of the other Roses were chiefly those which had already received the Certificate of Merit, and while their appearance confirmed the judgment of the Council, there was no present claim to the highest award. Rose Berkeley, McGredy's Scarlet, Lady Leslie and Mrs. C. Aveling are the names of the best of these varieties.

Nurserymen's Section.

The most important class in this section was that which required a representative group of cut Roses, twenty-five feet by four feet, and the exhibits staged in this class constituted the chief decorative feature of the show.

Six groups were staged, and that set up by Messrs. S. McGredy and Son was deservedly awarded the premier place, for it was very tastefully arranged and the blooms were wonderfully brilliant and clean. As a background, there were pillars of Los Angeles, Hortulanus Buddé, McGredy's Ivory, Margaret McGredy, Madame E. Herriot, Frau Karl Druschki, Sir David Davis and Mrs. Henry Morse, while the handsome corner pillars were of Mrs. A. R. Barraclough and Betty Uprichard. The centre basket of Emma Wright, and the smaller ones of Portadown Bedder and Mrs. Sam McGredy, were very charming, while other good sorts were Christine, Norman Lambert, Miss Willmott, Golden Emblem and Mrs. Charles Lamplough, the last named being of exceptional quality.

Messrs. Chaplin Bros., Ltd., were placed second with a very handsome bank of blooms. They had pillars of Girlie, Scarlet Leader, Coral Cluster, Edith Cavell, Alice, Locarno and Elsie Poulsen as a background to a double row of pillars of such good sorts as Mrs. Henry Bowles, Mrs. Charles Lamplough, Windsor, Dame Edith Helen, Los Angeles, Frau Karl Druschki and Waltham Cross. The baskets of W. R. Chaplin, Conqueror, Mrs. Henry Morse and Independence were well placed. Third place in this important class was taken by Mr. J. H. Pemberton, whose pillars of Moonlight, Vanity and Robin Hood at the back, and of Felicia, Mermaid and Cornelia at the front, were very effective. He had charming baskets of Madame Butterfly and K. of K., other well-shown sorts being Mrs. Henry Bowles, Shot Silk, Mrs. Jules Bouché, Fortuna, Bianca and Padre.

Other exhibitors in this class were Mr. Elisha J. Hicks, who had lovely pillars of many good sorts, and grand vases of Betty Uprichard, W. F. Dreer, Dame Edith Helen, Angele Pernet, etc.; Messrs. Benjamin R. Cant and Sons, Ltd., whose chief sorts were Etoile de Hollande, Rev. F. Page Roberts, Padre, Shot Silk, Dame Edith Helen and Mrs. Beatty; and Messrs. Alex. Dickson and Sons, Ltd., who had artistically arranged masses of Mrs. Wemyss Quinn, Flamingo, Canary, Edith Helen Perkins, Madame Butterfly, Hugh Dickson and Dame Edith Helen, and lovely pillars of Lady Pirrie, Swansdown, Mabel Morse and Betty Uprichard.

The charming group set up by Messrs. D. Prior and Son, Ltd., was considered the best of the six exhibits in the class for a representative group of cut Roses, fifteen feet by four feet. The group contained lovely baskets of Mabel Morse, Mrs. Beatty, Christine and Mrs. C. A. van Rossem, and effective pillars of Shot Silk, Kirsten Poulsen, Elsie Poulsen, and Ophelia, other good sorts being Dame Edith Helen and Miss C. E. van Rossem.

Messrs. R. Harkness and Co., who had a very poor position, were a close second, with a grand group in which the chief features were a central basket of grand blooms of Mrs. Charles Lamplough; pillars of Mrs. A. R. Barraclough, K. of K., Lord Charlemont, Los Angeles and Mrs. Henry Morse, and vases of Madame Butterfly, Rufus, Mariposa and Rev. F. Page Roberts.

The Dowty's Rosery exhibit was third, outstanding varieties in it being Ophelia, Hadley, Ariel, Hortulanus Buddé, Mrs. Henry Bowles and Mrs. Herbert Stevens; while Mr. George Prince, whose chief feature was an extensive array of the *Daily Mail* scented Rose, was fourth. The other exhibitors in this class were Messrs. A. J. and C. Allen and Messrs. W. Easlea and Sons, Ltd.

In the class for a representative group of Roses, ten feet by four feet, Mr. John Mattock led with an attractive collection in which prominent sorts were Mabel Morse, Etoile de Hollande, K. of K., Dame Edith Helen, Madame Butterfly, Los Angeles and Mrs. C. A. van Rossem; Messrs. A. Reeves and Co. were second, and Mr. Henry Drew, third, both showing many good sorts excellently arranged.

For five baskets of cut Roses, distinct, Messrs. Wheatcroft Bros. were first, with lovely baskets of Shot Silk, Hortulanus Buddé, The Princess Elizabeth, Los Angeles and Angele Pernet; second, Messrs. Thomas Smith and Sons; while for three baskets, distinct varieties, the premier award went to Mr. E. B. le Grice. For three baskets of Polyantha Roses, distinct, Messrs. D. Prior and Son, Ltd., showing Elsie Poulsen, Kirsten Poulsen and Alice Amos, secured first prize, Mr. E. B. le Grice and Messrs. A. Warner and Son being second and third, respectively.

The exhibits in the class for twenty-four distinct varieties, not less than three or more than nine stems of each, were not up to standard, although several good individual blooms were shown. Messrs. W. Drew and Son were first, Messrs. Henry Morse and Sons, second, and Messrs. Wheatcroft Bros., third.

In the classes for exhibition Roses in boxes, Messrs. Thomas Smith and Sons were first for twenty-four blooms, distinct, their best being Augustus Hartmann, Louis Crette, Margaret McGredy and H. Stanhope; second, Messrs. W. Drew and Son; third, Dowty's Rosery. Mr. Henry Drew led for eighteen blooms, distinct, showing, among others, good examples of Mrs. Henry Bowles, George Dickson and Earl Haig; second, Messrs. R. Harkness and Co.

Messrs. W. Drew and Son showed the best two baskets of exhibition Roses, two varieties, each in a separate basket, his varieties being Mrs. Charles Lamplough and Earl Haig; Messrs. Wheatcroft Bros. were placed second, and Messrs. Thomas Smith and Sons, third.

An interesting feature was the class for five vases of Rose "hips," distinct, those arranged by Mr. George Prince being deservedly adjudged the best, for he had lovely sprays of R. Webbiana, R. Moyesii, the black-fruited R. attaica, R. lucida, and R. Fedtschenkoana. Mr. J. H. Pemberton was placed second, and the Stanway Rose Gardens, Ltd., third.

Amateurs' Classes.

The eight classes for various Roses in baskets induced very good competition and contained many good blooms. Mr. H. Mitchell, Bradford, was first and Mr. H. F. Spicer, Hitchin, second, in the class for a basket of any one variety. Mr. George Marriott, Carlton, Nottingham, had the best of many single baskets of mixed Roses, and Mr. H. Mitchell was a good second. In the similar class for those who do not grow more than five hundred plants the quality was also exceedingly good, and here Mr. Norman Fletcher, Faringdon, Berkshire, was first, and Mr. Walter Martineau, Boxmoor, Hertfordshire, was a close second.

Showing good blooms of Ophelia, Mrs. Oakley Fisher, Sudbury, Middlesex, was first in the class for a basket of Roses open to growers within a radius of ten miles of London Bridge, and Mr. A. N. Rogers, Putney, was second. Mr. Norman Fletcher, Mr. S. E. Tattersall, Orpington, and Mr. T. S. Malcolm, Warlington, won first prizes with good baskets of Roses in the classes for amateurs who grow their own Roses. Miss L. Walke, Cambridge, was the most successful of those who had not previously won a first prize at the Society's show.

The Roses in vases were especially good. Mr. George Marriott, who included Mrs. H. Stevens, Golden Emblem and Hortulanus Buddé, was first in the class for six vases, and Mr. H. R. Darlington was second. Mrs. C. E. Whitcombe, Bewdley, Worcestershire, had the best six vases of rambler Roses, and she included Dainty Bess, Golden Spray and Climbing Mrs. H. Stevens. Miss Tilley, showing Mermaid, K. of K., and Lady Pirrie of considerable beauty, was the first of four exhibitors who grow their own Roses.

There were some very good exhibition Roses in boxes. Mr. G. Speight, Market Harborough, had the best twelve, and he included Mrs. H. Morse, Bessie Chaplin, Coronation, Frau Karl Druschki, Florence Forrester and Mrs. John Laing. Mr. J. N. Hart, Potters Bar, was a good second, and his best blooms were Mrs. A. R. Barraclough, H. T. Machin, Gladys Harkness, Mrs. C. Lamplough and Mrs. F. Dennison. Mr. H. Mitchell was third. Mr. Walter Martineau had six excellent blooms in his first prize board; he included Lemon Queen, Bessie Chaplin and George Dickson. Mrs. C. E. Whitcombe was second. Mr. W. H. Beckett, Bletchley, Mr. T. S. Malcolm and Mr. W. E. Moore, Ickenham, won first prizes with good exhibition Roses. Mr. A. N. Rogers, Putney, was first in the Metropolitan class.

The ladies' artistic classes fully maintained the expected high degree of excellence, and their arrangements were a very attractive feature of the show. In the open section, Mrs. Tisdall was first with a beautiful dinner table of Roselandia and Rosa sericea pteracantha foliage, and Mrs. A. R. Bide was second, with a fascinating table of Angele Pernet. Mrs. Tisdall also won first prize with a bowl of Roselandia, and Mrs. L. R. May was placed second with Madame Buttetfly.

In the amateurs' section there were many very beautiful dinner table decorations of Roses, and the very best was of Roselandia and Rose foliage artistically arranged by Mrs. Courtney Page, Haywards Heath. Miss M. Woolven, East Grinstead, who used Madame Butterfly effectively, was second. Only Miss L. Walker, Hoddesdon, arranged a table in the class for lady members who had not previously won a first prize. Mrs. Courtney Page was first with a handsome bowl of mixed varieties, and Mrs. A. D. Ruff, Sharsbrook, was a good second. Mrs. C. J. Cooper, Warlingham, who used Sylvia and Madame Butterfly very tastefully, had the best vase of Roses, and Mrs. Courtney Page was second.

The Silver-gilt Medals offered for the best blooms were won by Mr. H. Mitchell, with a lovely bloom of Souvenir de Claudius Pernet, in the amateurs' section, and by Messrs. S. McGredy and Sons, with a magnificent bloom of Mrs. C. Lamplough, which was found with many others almost as good in a large stand in their representative group.

NATIONAL CHRYSANTHEMUM.

The first meeting of the Floral Committee of the National Chrysanthemum Society for the ensuing season, held at the R.H.S. Hall, on September 9, was a most successful one, as no fewer than twenty novelties were submitted for judgment. Mr. D. B. Crane was again elected Chairman of the Committee.

The following awards were made :—

First Class Certificates.

Kingcup. II. 1c (Fig. 108). A graceful, reflexing flower of medium to small size and of rich golden-yellow colour. It is free-flowering as shown by the branching sprays exhibited, and it should prove a useful border variety; the height is stated to be four feet. Shown by Mr. H. Shoesmith, junr.

Almeda. II. 1*b*. A flattish flower of good size, as shown in disbudded form. It has broad flowers, and is of clear fawny-bronze colour, but occasional rose shading suggests its descent from Consul.

Winnie Avery. II. 1*b*. A large-flowered variety with rather stiff, broad flowers of good substance. The colour is old-gold with bronze tinting. This and the foregoing variety were shown by Mr. C. T. Kipping, Hillcrest Orchard, Althorne, Essex.

Crimson Focerex. II. 1*b*. A large-flowered early variety of graceful, drooping Japanese form. The colour is rich crimson with an old-gold centre that is formed by the reverse of the smaller central florets. Shown by Mr. J. Barrell, Bridgwater.

UNITED HORTICULTURAL PROVIDENT AND BENEFIT.

Mr. C. H. Curtis presided at the monthly meeting of this Society, held in the R.H.S. Hall. on Monday, September 9. One new member was elected, and one member withdrew £10 6s. 9d. from his lapsed account, while another member withdrew interest amounting to £5 4s. 2d., from his deposit account. The sick-pay for August came to £102 17s. 6d, on the Ordinary side, and to £89 7s. 6d. in the State section, while maternity claims totalled £7.

The sum of £21 0s. 1d. was granted to six members for optical, dental and surgical treatment, and several other cases were considered.

The Secretary reported his attendance at Shrewsbury and Southport Flower Shows, where he was able to distribute leaflets, balance sheets and membership forms; a vote of thanks was accorded the Chairman for his kind assistance at Southport.

TRADE NOTE.

An interesting little booklet dealing with fertilisers for garden and lawn, is the means adopted by Messrs. Joseph Fison and Co., Ltd., Ipswich, of bringing to the notice of customers their special fertilisers for autumn use in renovating lawns, flower borders, etc. As may be expected from this noted firm, the information and instructions contained in the booklet are sound and practical.

ANSWERS TO CORRESPONDENTS.

GARDENERS' NOTICE TO LEAVE.—*C. F. S.* If you are a head gardener and no special arrangement as to notice was made at the time of employment, and there is no local custom to the contrary, you are entitled to a month's notice. The notice need not be stamped.

IRISH YEW TREES.—*T. W. G.* Irish Yew trees would be likely to thrive under the conditions described, provided the salt spray is only occasional. If salt spray is blown to the position fairly regularly, if only during a certain period of the year, it will probably result in the browning of the leaves, and eventually the death of the shoots, more particularly on the windward side. Should the spray be in sufficient volume to allow salt water to drip down to the roots, it is unlikely that the plants will ever establish themselves. As this is a case of proportion, you would be wise to plant a few trees in the position described and watch them carefully for a year or two. Two years should be long enough to prove whether the conditions will be really harmful or not. The fact that the position is well sheltered from wind is to the advantage of the plants.

NAMES OF FRUITS.—*S. H. H.* Apples, 1, Red Victoria; 2, Cardinal.—*Altho.* —Apple James Grieve.—*A. E. Y.* Your Peaches and Nectarines, were all perished upon arrival so that identification was impossible. —*W. B.* Apples, 4, Red Astrachan; 5 and 7, Lord Suffield; 6, Lord Grosvenor; 1, 2 and 3, immature; please send when ripe and fully developed.—*H. F. B.* Apples, 1, Barnack Beauty; 2, Sugar-loaf Pippin; 3, Pear Jargonelle.

PEACH FRUITS SHRIVELLED.—*F. I.* There appears nothing wrong with the treatment of your Humboldt Nectarine, we can only suggest light shading and more liberal treatment to increase the size of the foliage, and give a more natural shade to the fruits. It is possible the stock on which it is worked is the cause of the trouble, and now the tree has got weak, only a season's rest or very light cropping will restore it to health.

PEACH TREE FOLIAGE YELLOW.—*R. G. L.* We found no disease in the leaves sent for examination; they were poor and thin in texture and appeared to be suffering from a lack of nourishment. Although this tree may receive the same treatment, it may be on another stock. Give now ¼lb. of sulphate of iron dissolved in water at the rate of three-quarters-of-an-ounce to five pints of water. See that the tree is fairly moist before applying this, and wash well with clear water. Reduce the crop next year. Make sure you have plenty of lime in your soil. Top-dress the border with good loam and give a good sprinkling of bone-meal, while, during the growing season, mulch well with decayed manure and feed more generously with liquid manure and other stimulants to encourage the tree to make more growth.

VINE NEGLECTED.—*F. Q.* During the winter or early spring months you should thin the growths of your vine, leaving those rods with the most healthy lateral growths on and cutting this season's lateral shoots back to two or three buds. Each rod should be tied to the wall two to three feet apart, and each young growth stopped two leaves beyond the bunch, and all other useless shoots removed except the leaders, which should be allowed to extend as required. By this means and a little careful attention to watering, feeding and syringing on fine evenings, your vine will recover quickly. It is impossible to give you the name from the bunches and leaves sent.

Communications Received.—J. F.—R. F.—S. W.—F. J. T.—W. J. S.—H. F.—A. G.—W. A.—F. H. W. —R. H. T.

MARKETS.

COVENT GARDEN, Tuesday, September 17, 1929.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.... ...	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums	18 0-24 0
Crotons, per doz.	30 0-45 0
Cyrtomiums ...	10 0-12 0

	s. d. s. d
Hydrangea paniculata ...	18 0-24 0
Lilium longiflorum, per doz.	18 0-24 0
—speciosum rubrum, per doz.	18 0-36 0
Marguerites, white, per doz.... ...	9 0-12 0
Nephrolepis, in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Roses, Polyantha, per doz. ...	15 0-18 0

Cut Flowers, etc: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	8 0—9 0
—cuneatum, per doz. bun. ...	5 0—6 0
Asparagus plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 6—2 0
—short „ ...	0 9—1 0
Asters, white, per doz. bun.	3 0—6 0
—mauve, per doz. bun. ...	3 0—6 0
—pink, per doz. bun.... ...	3 0—6 0
Carnations, per doz. blooms	1 6—3 6
Chrysanthemums, bronze, per doz. blooms	2 0—3 0
—white, per doz. blooms ...	3 0—6 0
—yellow, per doz. blooms	3 0 6 0
—pink, per doz. blooms ...	3 0—5 0
—bronze, sprays, per doz. bun.	4 0—9 0
—white, sprays, per doz. bun.	6 0—9 0
—yellow, sprays, per doz. bun.	6 0—9 0
—pink, sprays, per doz. bun.	6 0—8 0
Cornflowers, blue, per doz. bun.	1 6 2 0
Croton leaves, per doz. ...	1 9—2 6
Delphinium, blue, per doz. bun.	5 0—6 0
Ferns, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	9 0-10 0
Gaillardia, per doz. bun. ...	2 0—2 6
Gladiolus, large vars., white, per doz. spikes	1 6—2 6
—yellow „	2 0—2 6
—pink „	1 6—2 6
—mauve „	2 0—2 6
—scarlet „	1 0—2 6
—primulinus „	0 9—1 6

	s. d. s. d.
Heather, white, per doz. bun.	6 0—8 0
Lilium longiflorum, long, per bun. ...	— 3 0
— — short, per doz. blooms	2 6—3 0
—speciosum album, long, per doz. ...	3 0—4 0
— — — short, per doz. ...	2 6—3 0
—auratum, per doz. blooms	5 0—6 0
Lily-of-the-Valley, per doz. bun.	24 0-30 0
Marigolds, per doz. bun. ...	1 6—2 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0-42 0
Physalis, per doz. bun. ...	12 0-24 0
Roses, per doz. blooms—	
—Columbia ...	2 0—3 0
—Richmond ...	1 6—2 6
—Yellow ...	1 6—2 6
—Molly Crawford ...	1 6—2 6
—Butterfly ...	1 6—2 6
Scabiosa caucasica, per doz. bun. ...	3 0—5 0
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	3 0—5 0
—white, per doz. bun.... ...	4 0—6 0
—yellow, per doz. bun. ...	4 0—5 0
—incana, per doz. bun. ...	9 0-10 0
—latifolia, per doz. bun. ...	8 0—9 0
Stock, double white, per doz. bun.... ...	4 0—6 0
—mauve, per doz. bun. ...	6 0—8 0
Sweet Sultans, white, per doz. bun. ...	2 6—3 6
—mauve, per doz. bun. ...	2 6—3 6
—yellow, per doz. bun. ...	3 6—4 0
Zinnias, per doz. blooms ...	1 0—3 0

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Cox's, per tray	6 0-12 0
—½-bushel case	12 0-20 0
—James Grieve, per tray ...	3 0—5 0
—Miller's Seedling, per tray	4 0—5 0

	s. d. s. d.
Apples—	
—per ½-bushel...	3 0—4 0
—per ½-bushel, selected ...	5 0—6 0
—Worcester Pearmain, per ½-bushel ...	3 0—7 6
—Lord Derby	4 0—6 0

Fruit: Average Wholesale Prices—continued.

Apples—	s. d. s. d.
—Warner's King, per bushel ...	4 0—6 0
Bananas, per bun.... ...	11 0-18 0
Grapes, English—	
—Alicante ...	1 3—2 0
—Gros Colmar	1 0—2 6
—Muscat ...	2 0—6 0
—Canon Hall ...	2 0—5 0
—Black Hamburgh, per lb.	1 0—2 6
Grape Fruits ...	20 0-27 6
Lemons, per case—	
—Messina ...	20 0-32 6
—Naples ...	25 0-32 6
Melons, each ...	1 0—4 0
Nectarines, per doz.... ...	4 0-18 0
Nuts, Cob, per lb.	0 4—0 5

	s. d. s. d.
Oranges—	
—Cape, per case	10 0-15 0
—Brazilian ...	9 0-10 0
Peaches, per doz. ...	8 0-18 0
Pears, English—	
—Hessle, per bushel ...	3 6—4 0
—William, per ½-sieve ...	4 0—8 0
—Dr. Jules, per ½-sieve ...	5 0—7 0
—Fertility ...	3 6—4 0
—French, per crate ...	5 0—7 0
Pineapples, case	21 0-36 0
Plums, English—	
—Monarch ...	7 0—9 0
—Pond's Seedling	6 0—8 0
—Victoria ...	6 0-12 0
—Damsons ...	4 0—5 0
—Bush... ...	3 0—4 0
—Gages ...	6 0—8 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, Runner, per bushel ...	2 0—4 0
—French, per ½-bushel ...	1 6—2 0
—Guernsey, per lb.	0 3—0 6
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-bushel ...	2 0—2 6
Cabbage, per doz.... ...	0 9—1 0
Carrots, per ½-bag, washed	2 6—3 6
Cauliflowers, flat, per doz. ...	2 6—4 0
Endive, French, per crate, 18's and 24's ...	7 0—7 6
— Batavia, per crate, 18's ...	— 6 0
Lettuce, Cabbage, 18's, 24's ...	3 0—4 6

	s. d. s. d.
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	3 0—4 0
—broilers ...	2 0—2 6
Parsnips, per cwt. ...	4 0—5 0
Potatos, cwt. ...	3 0—5 0
Tomatos, English, per box of 12 lbs.—	
—pink... ...	2 6—4 0
—pink and white	2 6—4 0
—white ...	2 0—2 6
—blue ...	1 6—2 0
—Guernsey ...	2 0—2 6
—Jersey ...	1 6—1 9
—Dutch ...	2 6—3 0
Turnips, per doz. bun. ...	4 0—6 0

REMARKS.—This week has seen an all-round improvement in the general demand. Produce available is heavy, but it is moving freely. Rather better conditions are ruling in the hothouse fruit department. Although supplies are heavy, and the Grapes, Melons, Peaches and Nectarines are selling better, there are only small price movements recorded; but, on the whole, the market for these commodities may be termed fairly good. In the English Apple market there is some activity, and best Apples, well packed, are selling well, but there are too many second-class fruits coming into the market, which might have been better disposed of nearer home. Pears are plentiful and, on the whole, are selling fairly well. Plum supplies are heavy, but good Victoria, Pond's Seedling, Monarch and Damsons are selling freely. After an upward movement, English Tomatos are again quoted at lower prices, for which increasing arrivals of Jersey Tomatos have been responsible. Cucumbers show little variation from the recent improved price level. Mushrooms are a firm trade in view of the absence of competition from field Mushrooms. The vegetable section shows a tendency to better values, but cooler weather is necessary before cooking becomes popular to a degree that will develop a demand for vegetables. Salads, such as Lettuces and Endive, are scarce and costly. The Potato trade remains steady.

GLASGOW.

Business in the cut flower market continued dull last week and any movement in prices was in a downward direction. Spray Chrysanthemums sold at from 2d. to 6d. per bunch, and disbudded blooms from 6d. to 1s. for 6's, while specials realised 1s. to 1s. 6d. Gladioli were worth 1s. per dozen spikes; Carnations, 1s. to 1s. 9d.; Roses, 1s. 6d. to 2s. 6d.; Lilium speciosum var. rubrum, 3s. 6d.; Richardias, 3s. to 3s. 6d.; Dahlias, 2d. to 5d.; Stocks, 4d. to 6d.; Asters, 2d. to 3d.; Sweet Peas, 1d. to 3d.; Gypsophila paniculata, 9d. to 1s. 9d.; and White Heather, 7d. to 10d.

Plums dominated the fruit market. Victorias were plentiful at 6d. to 9d. per lb. for table fruits, and 2d. to 4d. for cooking, and other varieties averaged 4d. per lb. English Damsons made 4d., and cooking Apples, 2s. to 3s. per sieve. Home-grown Grapes of good quality are in daily supply. Muscats sold at 5s. per lb.; Kippin Grapes, 3s 6d., and ordinary, 2s. Peaches ranged from 6s. to 12s. per dozen.

In the vegetable market, Cucumbers were offered at 4s. per dozen Cauliflowers, 2s. to 3s.; and Lettuces, 1s. to 1s. 6d.; French Beans, 4d. to 6d. per lb.; Tomatos, 4d. to 5d.; and Marrows, 5d. each.

GARDENING APPOINTMENTS.

Mr. S. Wren, for the past four-and-a-half years gardener to Sir GEOFFREY FRY, Bart., Oare House, Marlborough, as gardener to Mrs. CAEMBE, Pain's Hill Park, Cobham, Surrey. [Thanks for donation to R.G.O.F. Box.—EDS.].

Mr. O. J. Smith, for the past four years gardener to H. S. CHOLMEBY, Esq., as gardener to W. E. BULLOCK, Esq. Lulworth, Coventry. [Thanks for 2s. for R.G.O.F. Box.—EDS.].

THE
Gardeners' Chronicle
No. 2231.—SATURDAY, SEPTEMBER 28, 1929.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 53·8°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, September 25, 10 a.m. (Greenwich time). Bar. 30·5. Temp. 62°. Weather, Fine.

Stem-rot or Wilt Disease of Carnations.

Although certain cultivators of perpetual-flowering Carnations find little difficulty in maintaining their plants in a rude state of health by following a careful system of cultural conditions, and a regular use of insecticides and fungicides for preventive purposes, there are those who find success hard to obtain because their plants appear always subject to fungus diseases. One of these last, and one of the most insidious, is the Stem-rot, or Wilt Disease of Carnations, but so much light has been thrown upon this scourge by Dr. W. J. Dowson that there is no good reason why the disease should not be prevented from infecting clean stock, or, at least, have its effects reduced to a minimum. It was at the suggestion of Mr. F. J. Chittenden that Dr. Dowson, then at Wisley, undertook an investigation with the object of finding out (1) whether or not the disease occurring in English nurseries is the same as that recorded elsewhere; (2) under what conditions the disease occurs and is spread, and (3) what control measures could be recommended to Carnation growers. After reviewing previous work on Carnation Wilt Disease, Dr. Dowson proceeds* to describe the occurrence and symptoms of the disease in Carnation houses. He found that the trouble was most evident during June, July and August—periods when the average temperature is higher for a longer duration than at any other time of the year—and is most conspicuous on two-year-old or three-year-old plants. It is not uncommon, however, to find Stem-rot or Wilt in younger plants, or even in newly transplanted cuttings, hence the greater need for the discovery of preventive measures, seeing that cuttings and small, rooted plants are the media by which Carnations are usually distributed by the nurserymen. Cultivators who have suffered loss know full well that the symptoms which portend disease are a slow wilting of one shoot after another, with a loss of the vital green colour, until a straw-yellow shade prevails. Then follow a decay of the roots and a softening and rotting condition of the "collar," although Dr. Dowson states that this latter condition is not a constant sign of infection. Discovering that the disease was more prevalent in certain beds of Carnations than in others, Dr. Dowson found that underground moisture induced wetter conditions in the badly affected beds, while experiments showed that the disease was more virulent and fatal in wet soil than in dry, although up to a certain point the "wet" plants made taller growth than the "dry" ones. Deep planting may favour the disease, as plants with the upper portion of their roots exposed are not so liable to attack. Several strains of Fusarium were isolated from diseased tissues, and it was found that F. culmorum is able to produce a Die-back form of disease, and is also capable of producing Stem-rot, but F. herbarum appears to be scarcely less troublesome; it is, moreover, possible to introduce disease through a contaminated water supply. Following his interesting and careful survey of the disease in question, Dr. Dowson suggests that as the three Fusaria concerned —F. culmorum, F. herbarum and F. avenaceum—are widespread, and probably occur in most soils, the best means of control are:—to sterilise all beds, preferably by steam, before planting; by rooting cuttings in sterilised sand; by quarantining all plants received from an outside source; by careful watering so as to avoid splashing the "stopped" plants; and by keeping the temperature of the Carnation houses relatively low through the summer. Finally, Dr. Dowson states that in England, the occasional Wilting of quite young Carnation plants is due to F. culmorum, while the much commoner Die-back of "stopped shoots" is caused both by F. culmorum and F. herbarum, and the more serious Stem-rot or Wilt is due to F. culmorum.

Register of Growers of Certified Strawberry Plants, 1929.—The Ministry of Agriculture and Fisheries has recently issued a Register of the names and addresses of growers whose stocks of Strawberry plants have been examined by the Ministry's Inspectors this season and certified as typical of the variety and reasonably free from rogues. The following eleven varieties only were examined:—Bedford Champion, Jucunda (Amazone), Leader (Kentish Favourite), Madame Koci (Princess Juliana), Madame Lefebvre, Oberschlesien, Royal Sovereign (Laxton's King George V), Sir Joseph Paxton, Stirling Castle (Garibaldi), The Duke and The Laxton. The certificates which have been issued relate solely to the purity of the stocks and must in no circumstances be regarded as guarantees of complete freedom from disease, although no stocks which appeared to be obviously unhealthy or lacking in vigour have been certified. There are two classes of certificates: (a) Super Certificates, issued in cases where, in accordance with written undertakings given at the time of application for inspection, growers have retained not more than five runners on each parent plant and have allowed only one young plant to develop on each runner—steps have been taken to ensure that the prescribed restriction of runners and young plants has been observed; (b) Ordinary Certificates, issued in cases where no undertaking has been given to limit the number of young plants allowed to develop on each parent. The certificates are valid only up to April 30, 1930, and growers to whom they have been issued have given undertakings that they will be used only in connection with runners produced in 1929 by the plants actually inspected and certified by the Ministry's Inspectors. Copies of the register may be obtained upon application to the Ministry, 10, Whitehall Place, London, S.W.1.

R.H.S. Examinations, 1930.—The Examinations of the Royal Horticultural Society will be held in 1930 as follows:—Written Examinations: General Examination (Seniors and Juniors), March 12 (entries close January 13, 1930); Teachers' (Preliminary and Advanced), March 22 (entries close January 13, 1930); Scholarship Examination, April 30 (entries close March 31, 1930); and National Diploma (Preliminary and Final), May 3 (entries close February 1, 1930). Practical Examinations: Teachers' Advanced, June 13; N.D.H. Preliminary, June 17 and 18; and N.D.H. Final, June 19 and 20. All entries, except those for the National Diploma in Horticulture, should be made on the form in the syllabus, obtainable from the Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.1.

Iris Society's "Bulletin."—*Bulletin* No. 7 issued by the Iris Society and dated July, 1929, is as valuable a production as those which have preceded it, and not less interesting. Although the total income of the Society was but £230 19s. 10d. in 1928, the Committee spent £128 13s. 0d. on *Bulletins*, but this amount was met in some measure by a donation of £25 and £18 16s. 8d. received from advertisements. We congratulate the Committee and Mr. Dillistone, the Editor, on their enterprise. Mrs. Murrell gives an account of her visits to the Iris gardens of Mr. Sutcliffe Pyman, at Sutton Scotney; of Mr. Bliss, at Morwellham, Devonshire; of Miss Insole, The Court, Llandaff; and of Mr. Pilkington, at Woolton, near Liverpool. New Irises, mostly under number, are described and coveteousness excited thereby. The veteran raiser, Mr. George Yeld, V.M.H., writes very ably of the Siberica sub-section of the genus Iris and, greatly daring, Mr. W. E. Saunders, while discussing the best dozen Irises, concludes that "size is not beauty"—a conclusion with which we are in accord. The Rose and the Iris are compared by Mr. Frank Burton, and Mr. Mills deals with "Irises in Canada." A pleasant description of the Iris Show of 1929, with an account of the functions connected therewith, are given, and Mr. G. G. Whitehead gives advice concerning Iris Susiana.

"The Flowering Plants of South Africa."—No. 33 (Vol. IX, January, 1929) of *The Flowering Plants of South Africa*, recently issued, contains descriptions and coloured plates of Commelina africana, t. 321; Caralluma mammillaris, t. 322; Commelina albescens, t. 323; Piaranthus geminatus, t. 324; Cotyledon cristata, t. 325; Commelina Ecklониana, t. 326; Disperis anthoceras, t. 327; Cotyledon Schonlandii, t. 328; Ixia maculata, t. 329; and Disperis micrantha, t. 330. Commelina africana, found in Cape Province, Orange Free State, Natal and Transvaal, is stated to be free-growing and of scrambling habit, flourishing and rapidly spreading on the rock garden and soon covering itself with its rather attractive, canary-yellow flowers. The inflorescence is peculiar in that it consists of two cymes, one of which bears only one bloom, which matures and falls while the flowers of the other cyme are still in bud. Caralluma mammillaris is closely related to Stapelia, in fact, it was described over one-hundred-and-fifty years ago as Stapelia mammillaris. Twenty-four species of Caralluma are found in South Africa, the genus differing from Stapelia in the structure of the corona; C. mammillaris is described as being difficult of cultivation, as if damaged in any way decay quickly sets in and is followed by the death of the plant. Commelina albescens differs from C. africana in the colour of its flowers, which are pale blue, and in having an inflorescence consisting of a single cyme. It is reported as a serious weed in cultivated land in the region of Pietpotgieters Rust, ranking in this respect second only to Cynodon dactylon, as its fleshy roots, when turned up and exposed by the plough, continue growing. The local name of this species is Kannil Dood. The genus Piaranthus is represented in South Africa by eleven species and was founded by Robert Brown in 1811; it differs from Stapelia and Caralluma in being devoid of an outer corona. Piaranthus geminatus was figured in the *Botanical Magazine* in 1810, t. 1,326; it was first figured in 1796, by Francis Masson. Cotyledon cristata does not appear to possess any decorative merit, although it may be interesting botanically, and the same remarks apply to C. Schonlandii, t. 328, the two species being closely related. Commelina Eckloniana belongs to the same sub-section of the genus as C. africana and C. benghalensis; it has small, rich blue flowers which, if produced in sufficient profusion, should make it of decorative value. The quaint little Orchid, Disperis anthoceros, flowers on the mountains of eastern Transvaal during March; it is a shade lover, being found growing under trees, and has been cultivated successfully at the Botanical Laboratories, Pretoria. The richly-coloured Ixia maculata has long been cultivated in the gardens of this and other European countries. Three of its colour forms are recognised in *Flora Capensis*, while the first illustration of it appeared in Jacquin's *Horti Schoenbrunnensis* in 1797; four years later it was figured in the *Bot. Mag.*, t. 539. Disperis micrantha is a terrestrial Orchid of botanical rather than horticultural value, for its flowers are insignificant. It has, apparently, not been figured previously.

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* "On the Stem-rot or Wilt-Disease of Carnations," by W. J. Dowson, M.A., D.Sc. *Annals of Applied Biology*, Vol. XVI., No. 2, May, 1929. London: Cambridge University Press, Fetter Lane, E.C.4. Price 12s.

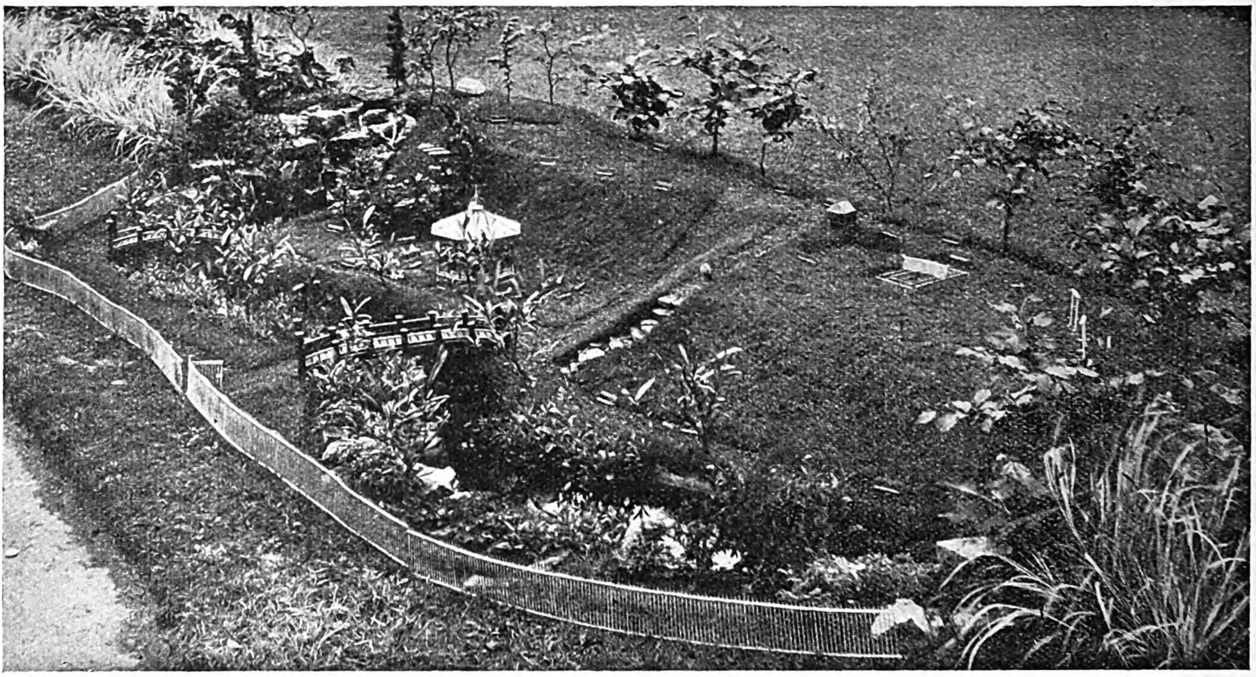

FIG. 115.—A MINIATURE PARK AT DARLINGTON.

Offer of a New Park for Liverpool.—It is announced that Sir James Reynolds, M.P. for the Exchange Division of Liverpool, has written to the Lord Mayor of the City offering his former residence, Dove Park, Woolton, with the gardens and grounds, to the Corporation for the use of the public. The house, which was almost completely destroyed by fire in June, 1921, is situated in fairly extensive and ornamental grounds in Church Road, Woolton, a suburb of Liverpool.

A Miniature Park at Darlington—A "bed" that is at once novel, interesting and instructive has been arranged in South Park, Darlington, by Mr. T. J. Morrison, the Superintendent, and it has attracted a great deal of attention and received favourable comment. It takes the form of a miniature park, complete in detail, (Fig. 115), with stream, waterfall, bridges, rock garden, bandstand, tennis court, children's corner, trees and shrubs, seating accommodation and surrounding fence. At dusk, the whole is illuminated by means of very tiny electric lights. The size of this miniature park is fourteen feet by five-and-a-half feet.

"Hardy and Half-hardy Plants."—In the September issue of *Hardy and Half-hardy Plants* (Vol. I, No. 5), Mr. A. W. Darnell includes descriptions and illustrations of Spartium junceum (coloured), Cynoxylon Nuttallii (syn. Cornus Nuttallii, under which name it is more commonly known); Zenobia pulverulenta, considered by some to be a variety of Zenobia speciosa; Dicentra pusilla, a quaint little alpine species from Japan; Gentiana verna, Oxalis lasiandra whose common name is given as the "Wooly-stamened Shamrock"; Ipomoea bicolor, Incarvillea grandiflora var. brevipes, Herschelia Charpentieriana, a quaint South African Orchid, also known as Disa Charpentieriana; Primula Agleniana, Opuntia humifusa (syn. O. Rafinesquii), Carmichaelia Williamsii, apparently not yet in cultivation; Calceolaria acutifolia, Bidens ferulaefolia (syn. Coreopsis ferulaefolia and Cosmos sulphureus) Sutherlandia frutescens, Aphyllanthes monspeliensis, Lathyrus sativus var. azureus, Delphinium nudicaule, Physaria didymocarpa, Mimulus primuloides and Pellaea Breweri.

Trials of Early-flowering Chrysanthemums.—The National Chrysanthemum Society's Trials of Early-flowering Chrysanthemums, conducted by Mr. Hatch, at his Cookham nursery, will be inspected by a special sub-committee during the afternoon of Tuesday, October 8. Members of the Society and representatives of the Horticultural Press are invited to attend. A train leaves Paddington at 2.5 p.m. for Maidenhead; thence by bus to Cookham.

Sacred Bo Tree Damaged.—Great interest was taken in the trial at Colombo on September 16, before the Lord Chief Justice and two other Judges, of a man who, on July 30, mutilated the famous sacred Bo Tree at Anuradhapura. The Attorney-General, with the Solicitor-General and Crown Council, prosecuted, and two medical specialists gave evidence that the prisoner was of unsound mind, one stating that he imagined himself a special kind of Buddha and mutilated the Bo Tree to prove that he possessed divine powers. The Court unanimously found the prisoner of unsound mind and incapable of making a defence.

Horticultural Education Association.—Under the presidency of Sir William Lobjoit, O.B.E., the twenty-fifth Annual General Meeting and Conference of the Horticultural Education Association was held on September 12 and 13, at the Edinburgh and East of Scotland College of Agriculture, Edinburgh. Upwards of thirty members assembled, representing the County Horticultural Staffs and Research Stations of the British Isles and, among others present, was Mr. H. V. Taylor, Commissioner for Horticulture, Ministry of Agriculture. A most instructive itinerary was carried through during the two days of the Conference. A tour of the Royal Botanic Garden, Edinburgh, was made under the guidance of the Director, Professor Wright-Smith, and the Curator, Mr. R. L. Harrow, during which the remarkable work being done in the propagating department in striking from cuttings all classes of plants by an improved technique, was ably demonstrated by Mr. L. B. Stewart, Assistant Curator. The necessity for the greatest degree of success in this department will be realised when it is stated that 450,000 plants are distributed annually. The Royal Caledonian Horticultural Society's Show in the Waverley Market was visited on the evening of the 12th; this show was a feast of beauty, and southern visitors were much impressed by the evidence of Scottish horticultural skill there displayed. The morning of the second day was devoted to visiting the Scottish Seed-Testing Station and Potato Trial Plots at East Craigs. Mr. T. Anderson received the party, and explained the organisation of the Station and the plots. The careful and painstaking work of the staff of this Station impressed everyone present. The machinery employed in the various processes attracted a good deal of attention; particularly the balances capable of automatically recording the weight of a single Clover seed, and an ingenious small piece of machinery for laying out a known quantity of seeds for the germination test. The work being carried out at this Station among Potatos was particularly instructive, especially in the direction of testing true stocks of standard varieties. It was learned that, in order to produce these stocks free from Virus diseases, tubers of the true stocks are planted twenty yards apart in fields of Turnips. Later in the day, Messrs. Dobbie's seed establishment and nursery grounds were visited under the personal guidance of Mr. William Cuthbertson and members of the firm. Situated, as the trial grounds are, close to the sea and open to all the winds that blow, the stock displayed hardiness and vigour. The Dahlias, at the time of the visit, were especially fine. The tour concluded with a visit to Messrs. Scarlett's remarkable market garden at Inveresk; this establishment is conducted on the most modern lines and with the greatest efficiency. Mr. Robert Scarlett received the party on behalf of his father, Mr. James Scarlett, and mentioned in a short speech of welcome that much of the land had been under cultivation by members of the family for upwards of seventy years. Labour- and time-saving devices are largely employed, and the Skinner system of overhead watering installed in one section of the grounds was seen in operation.

Ostrowskia magnifica.—Mr. S. Arnott writes:—"Many readers will envy Mr. Kingscote the possession of such a noble plant of Ostrowskia magnifica, depicted in the Supplementary Plate in your issue of September 21. This fine species has given much trouble to growers of hardy plants for long years, and it is encouraging to see a photograph of such a grand specimen. In cold districts O. magnifica generally suffers from spring frosts unless protected by a hand-light, and even should it pull through, it is difficult to induce it to flower. In the light of the text on page 217, it is interesting to compare the cultural treatment of the Watermoor House plant with that recommended by Farrer, which you will, perhaps, allow me to quote. He wrote: 'Get large trunks of this as thick as your arm, ram down the surface of a sloping and very deep limy loam-bed in full sun until it is as hard as a threshing-floor. Then, with a crowbar, work a deep enough hole in this to take the trunk, put it in, fill up the hole, stamp it firm, and you need never again have a thought for O. magnifica, which for the rest of your lifetime will continue untended to throw up its stout boles and open its colossal Platycodon-flowers in June.' The note on page 217 awakens fresh hopes in the hearts of those who have tried O. magnifica and have failed to flower it. I have known cherished plants in a garden which did not flower even after six summers, and were reluctantly thrust forth as 'cumberers of the ground.' But where can one obtain the 'trunks as thick as your arm' of Farrer?"

Moray Field Club.—Despite the dull and rainy weather, the last excursion for the season by members of this Club proved a very informative and interesting one, and brought to a close a successful summer series. The Rev. George Birnie, B.D., of Speymouth, the President, led the party and contributed valuable information on the flora of the district visited—Kingston, a few miles from Elgin. The mouth of the Spey—that "regal, rolling river," as John Bright, the Victorian statesman, aptly termed it—was first visited, and here was pointed out the remarkably destructive effects that would be likely to accrue were the Spey to come down in tremendous spate. The picture presented was certainly not conducive to the peace of mind of those living in the locality. Attention was drawn to the vast heaps of small pebbles which are met with at intervals along the shore to Lossiemouth. Of exceptional hardness, these stones make excellent road material. They are of three types—hard granite, whinstone, and what Dr. Machie, late of Elgin, calls Conrack rock. The President then read out a very long list of the flora of the district called Leen, which represents an ancient course of the Spey. An enumeration of the rarer species to be found here will suffice for what the enthusiastic botanist may expect to find when visiting the region. They are: Hypericum hirsutum, Radiola Linoides (syn. R. Millegrana), Peplis Portula, Sedum villosum, Apium inundatum, Oenanthe fistulosa, Hypochoeris glabra, Jasione montana, Anagallis tenella, Veronica Anagallis-aquatica, Rhinanthus major, Galeopsis dubia (syn. G. ochreoleuca), Sparganium simplex, Listera ovata, Orchis carnea, and Catabrosa aquatica. Jasione montana is fairly plentiful on the Leen, the only locality on the east side of Scotland where it has as yet been found. Unfortunately, the weather marred much of the enjoyment of the excursion.

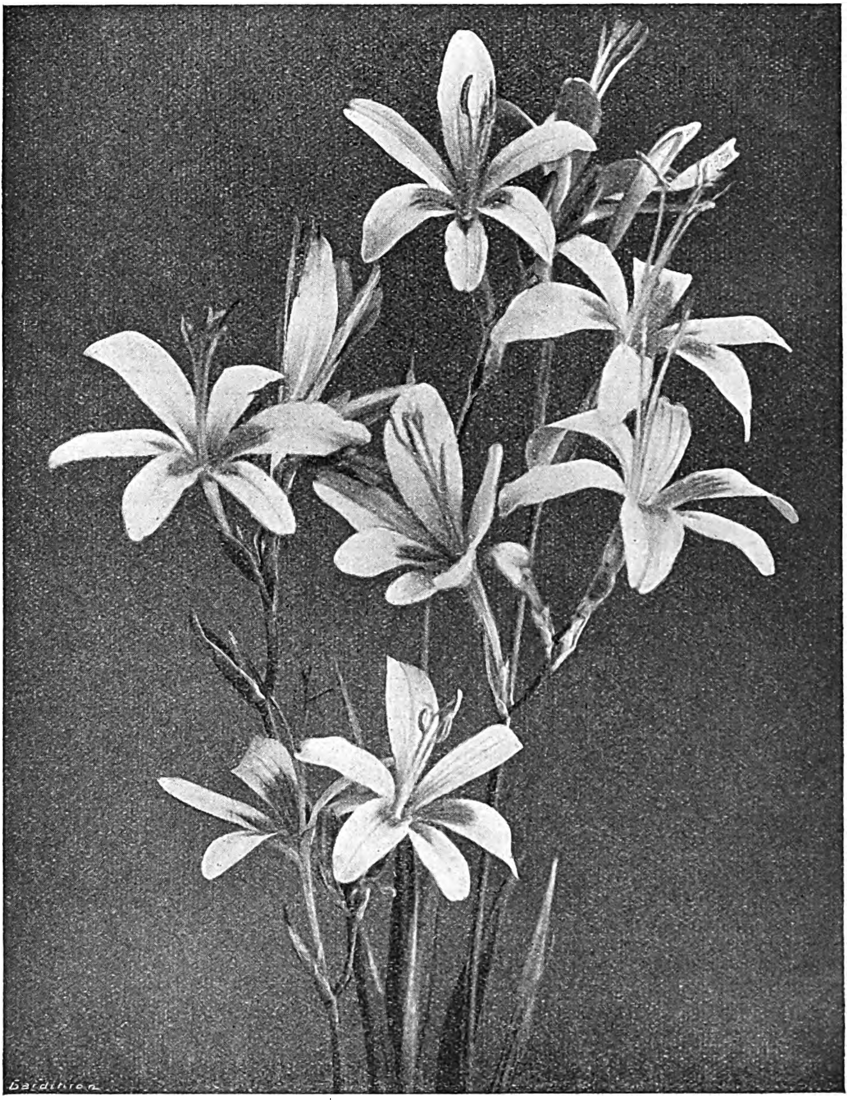

FIG. 116.—LAPEYROUSIA GRANDIFLORA.

R.H.S. Award of Merit, September 19. Flowers bright red, with crimson blotches. Shown by Mr. Amos Perry. (see p. 251).

Appointments for the Ensuing Week.—Tuesday, October 1: Royal Caledonian Society's meeting. Wednesday, October 2: Royal Horticultural Society's Autumn Show (two days); National Carnation and Picotee Society's meeting; Rotherham and District Horticultural and Chrysanthemum Society's meeting; Gainsborough Allotment Holders' Association's meeting. Thursday, October 3: Bideford and District Horticultural Society's meeting. Friday, October 4: Foots Cray Horticultural Society's Exhibition; Dundee Horticultural Society's meeting; Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Raising Seedling Dahlias.*—This is, perhaps, attended with more interest and pleasure than any other part of the culture of this noble flower. Much has been said and written respecting which sorts are best to save seeds from. I will not attempt to instruct, further than give the system practised by me; which is, to remove all thin, or otherwise inferior blossoms as they appear; for the fewer petals there are, the greater the quantity of seeds, with little or no chance of its producing a good double flower. By this, it will be seen, much ultimate trouble will be saved. In small, select collections, there will not be so much to do on this point; but in large collections there will be many varieties from which it is not desirable to save seed. This accounts for the number of fine seedlings that have been produced by amateurs from small collections; when many, who annually raise thousands, do not produce a good one. It is worthy of remark that those seedlings that take the lead and bloom first seldom, if ever, produce a flower worth preserving; these are from the finest seeds and thinnest blooms; they vegetate first, and keep ahead all through the season, and can easily be distinguished by their tall habit, without side branches; whereas the late small plants, that require nursing to make them bloom before the frost arrives, generally produce the best flowers; it is well known that very few of our best seedlings are ever shown the first season of their blooming. These are from the smallest seeds, and very double flowers. *T. Gard. Chron., September* 30, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Duckyls Park, East Grinstead, Sussex.

Deciduous Calanthes.—Specimens of these graceful, winter-flowering subjects are now growing rapidly, the new pseudo-bulbs being well advanced. To secure the production of strong spikes of good coloured flowers, the plants should be arranged so that each may receive a good share of light, in a position near the glass, and they should not be shaded any more than is necessary to prevent damage to the foliage by the sun. Usually, at this season, a light shading during the middle of the day, is sufficient. Full exposure to the sun during the early morning and late afternoon will help the pseudo-bulbs to finish well. At this stage, with the extra light allowed and the pseudo-bulbs nearing completion, the plants will require plenty of water at the roots each time the soil appears dry, while an occasional watering with weak liquid manure will be beneficial. Any feeding should be discontinued as the flower buds show on the spike, or the colour of the blooms will be affected adversely. Naturally, less water will be required as the foliage ripens, only sufficient being needed to keep the spikes plump and growing. The later-flowering varieties, such as those of the Regnieri section, are much later in growth and require similar treatment to the above later in the season. Calanthes grown in smoky districts open their flowers better during January than if allowed to expand them during November when fogs are so prevalent; therefore, after completing their growths the plants should be retarded by cooler and drier treatment to prevent the flower scapes developing so early.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

The Storage of Hardy Fruits: Apples.—How often it is that Apples and Pears that appeared to be absolutely perfect while growing on the trees in the early autumn have, after a period in store, turned out to be disappointing? In many cases the fruits shrivel, while others become mealy or even rotten when their season of use arrives. There are certain causes for this state of affairs, although the explanations put forward are varied and many. The chief of these are that the fruit store has not been properly constructed; that it is either too dry or too damp; that the aspect is all wrong; or, that the Apples from that particular soil will not keep. The chief cause, however, of shrivelled fruits in store is that the Apples or Pears have been gathered long before they were fit to harvest. No definite date can be given for any particular variety, as the varieties of these two kinds of fruit are influenced in the period of their gathering by season, locality and soil. The weather, too, has a very great influence on the date of gathering, as it may be cold or warm, wet or dry. Apples and Pears should be left on the trees so long as possible. This applies very particularly to the late-keeping varieties, for the longer they hang, the better will they keep in store without shrivelling. Do not be alarmed if a few fruits drop off, for it will be invariably found either that these are injured by birds or wasps, or that they contain grubs. Close observation, however, is necessary; when a sound fruit, on being lifted gently to a horizontal position, parts readily at the junction of the stalk with the spur, that is the best indication of the gathering period. The fruits should always be gathered in dry weather, and, as good storage commences in the orchard, every precaution should be taken to prevent bruising. Clean, galvanised pails are preferable to baskets for gathering the fruits. A thin layer of straw or wood-wool may be placed in the bottom of each vessel, to minimise injury to the fruits so far as possible. Each picker should be provided with a hook to hitch the pail on to the strongest branches at about waist height, so that both hands are free to handle the fruits. Where practicable, the fruits should be graded as they are gathered, all the sound fruits being placed in one vessel and sent direct to the store, while the very small or slightly disfigured fruits are sent to the packing shed for immediate use. Storage means preservation—avoidance of decay. To attain this the fruits must be sound, and free from insect attacks and disease. Careful handling is essential. Nothing is more conducive to disappointment than the storing of late-keeping Apples in a dry, badly ventilated room or loft. Such conditions may suit Pears to a certain degree, but they certainly do not suit Apples. A certain amount of atmospheric moisture, cool conditions, a fairly even temperature of from 35° to 40°, and darkness, are essential to the sound preservation of Apples. Guard against the alternate sweating and drying of the fruits, caused by variation of temperature. Extra ventilation is necessary for Apples during the first three weeks or so in store. This is called the sweating period, for then the fruits exude a greasy substance which is Nature's preservative. After this the store should be kept closed. There are occasions, however, when the air in the fruit store becomes musty or stagnant, and air must be admitted whenever possible, while the external and internal temperatures are about equal. This may be carried out by opening the doors and windows of the store for a few hours on some clear dry evening when the outside temperature is about 35°. The best floor for the fruit store is an earthen one, which rarely needs to be moistened; but where, of necessity, the floor is of wood or concrete, it will be found advantageous to sprinkle the floor occasionally with water to induce damper conditions, and so prevent the shrivelling of the Apple skins. When the Apples are brought to the store they may, with advantage, be piled on top of one another in six or eight tiers. They may be laid on the clean, slatted shelves, or, if desired, on clean Wheat or Barley straw laid across the shelves. This prevents bruising, and allows the air to circulate among the fruits. For that reason paper should not be used, nor is hay or Oat straw desirable, as these become very musty and impart that flavour to the fruits. Treated as recommended, Apples, such as Cox's Orange Pippin, Laxton's Superb, Newton Wonder and Bramley's Seedling, may be kept in perfect condition until the following March or even later. Since the introduction of grease-proof paper for wrapping purposes, it is now possible to prolong the season, by months, of such choice varieties as Cox's Orange Pippin, Laxton's Superb and Blenheim Pippin, by wrapping the individual fruits in this waxed paper. This wrapping paper is impregnated with a mineral oil, and is highly efficacious in preserving the fruits over a long period.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Pot Roses.—Roses grown in pots to produce early flowers should now receive attention with regard to top-dressing or repotting, if necessary. If the soil is in good condition, remove a few inches of the top soil only and apply a top-dressing of good loam, mixed with a liberal supply of bone-meal and wood-ash, after which stand the plants in an open position, plunging them to the pot rims in a bed of coal ashes as a protection against frost; if the plants have made very long shoots it may be wise to shorten these slightly to prevent the bushes being loosened around the collar by strong winds. Many of the Polyantha Roses make excellent subjects for pot culture, and for this purpose they do well on their own roots. Cuttings root readily if inserted in a sheltered border at the present time, or better still, insert four cuttings in a four-inch pot and plunge the same in a trench about an inch below the soil. With attention to potting them on into six-inch pots when they have formed roots, fine plants will be forthcoming for forcing next year.

Potting Bulbs.—Endeavour to procure any bulbs intended for early forcing at an early date, for the best results invariably follow when the bulbs have plenty of time to become thoroughly rooted before forcing takes place.

Sweet Peas.—Where Sweet Peas are grown for flowering under glass during the spring, seeds may be sown now or some time next month to obtain plants for this purpose. Sweet Peas are best raised in small pots for this purpose. Place four or five seeds inside the edge of a pot and germinate them in a cold frame; watch for such enemies as mice, for these are very partial to the seeds, and as a precaution traps should be set for them. During the winter afford the seedlings plenty of air and remove the lights from the frames on all favourable occasions to obtain sturdy growths, which should be the aim of the grower at all times.

Crocuses.—For a cool greenhouse, one cannot imagine anything more beautiful than the many fine varieties of Crocus vernus, when grown in pots or pans. Five or six corms may be grown in a five-inch pot. After potting they should be stood out-of-doors and covered with several inches of fibre or some other suitable material. Here they should remain until they are well rooted, when they may be removed to cold frames which should have the lights removed on all favourable occasions. It is wrong to make any attempt to force them by placing them in heat, for this would result in their going blind.

Browallias.—Plants that have been grown in frames during the summer months should now be placed in the greenhouse, where they should produce a wealth of bloom. Seeds may be sown now to secure plants for flowering next spring.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Early Vines.—Any root-lifting, root-pruning and additions to borders should now be pushed forward when the weather is favourable. The compost should be prepared in quantity equal to the probable demand; if new turf is used the addition of a fair percentage of bone-meal should set the whole mass in a state of fermentation. If root-lifting is contemplated owing to the compost being exhausted, the spent soil should be removed to make room for fresh compost. Commence at the front of the border when removing the old compost, and take care not to damage the roots as the work proceeds, keeping them moist until the drainage is examined. New turf, grass side downwards, should be placed over the drainage to form the base of the bed, and on this enough compost should be placed to bring it level with the lowermost layer of roots appearing from the undisturbed soil. These roots should be spread out after all faulty or injured parts have been removed with a sharp knife, a little fine soil placed over them, and the whole made firm by treading and beating carefully; further layers may then be added and made firm until the desired level is reached. One-quarter or half the border may be treated in this manner as may be found necessary. The vinery, during this process, may be kept fairly close and moist, or shaded, but if the vines have an abundance of roots in the undisturbed border inside or out, they will not show signs of having been interfered with. As vines always do best before the roots reach the extremity of the space allotted to them, especially when the boundary is formed of cold cement, a turf wall should be built up, allowing about a two-feet run before the new roots enter into it. The space left may be filled with Oak or Beech leaves, if not before, certainly when the vines are started. The gentle warmth from this material will work into the front of the new border and soon encourage the production of new roots, but on no account should this decaying vegetable matter be allowed to remain more than one season.

Peaches.—Peaches, with very few exceptions, have had their fruits gathered, and the next year's crop will greatly depend upon the treatment the trees receive throughout the remainder of the season. Many trees, after being cleared of fruits, only receive half the quantity of water they ought to have; if properly drained, Peach borders may be soaked each week throughout the growing season. Many people think that drought ripens up the wood and foliage, and so adopt a starvation system of treatment; a good set the following season cannot be expected where the borders are not kept moist enough to keep the roots moving through the winter. Trees in all early houses should have been pruned, that is, so far as cutting out superfluous shoots is concerned, but later trees should be dealt with without loss of time. Late trees should be kept extra thin, and all retained growths, especially the leaders, should be left full length. It is not necessary to cut the growths hard back, as the final thinning may be allowed to stand over until the trees are detached from the trellis; the letting in of sufficient light and air is all that is required at present. Borders in which the trees are making too vigorous, or, conversely, insufficient growth, should now be taken in hand. If growth is too strong, root-lifting and relaying in calcareous loam are the best remedies, and the firmer the soil is rammed the better. If growth is too weak, from age or overcropping, the surface soil should be removed well down to the roots and replaced with fresh, enriched compost containing a little soot, old plaster and bone-meal. Manure may be used in very extreme cases, but on no account should it be mixed with the compost, as the weakest trees can be restored by careful mulching, top-dressing and summer feeding. Once the work is finished, tepid water may be given quite freely.

THE FLOWER GARDEN.

By R. FINDLAY, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Dwarf Asters.—Among the numerous hardy plants that are available for the embellishment of the garden during late summer and early autumn, none are more welcome than the various forms of Aster Amellus. It is found advisable, especially in moist, retentive soils, to defer the planting of this section until early spring, otherwise there are sure to be losses during the winter months, as they resent root disturbance during the winter. No group of hardy plants is more easily cultivated, yet we often see clumps that have been grown for many years without the least thought of lifting and replanting in rich soil, and, naturally, these have greatly deteriorated. Among the best varieties, for either flower garden decoration or for the reserve garden to provide cut flowers for the house, is King George, which has large heads of bluish-violet flowers, the individual blooms being about three inches across. Variety Ideal is desirable, growing about two feet high and having large, mauve-coloured flowers with a yellow disc. A. Robinsonii is an ideal plant for the front of the border, for its pale blue flowers are produced with the greatest freedom. A. Frickartii is taller than many of the section, growing about three feet high. It flowers with the greatest freedom and is an acquisition to this section. It is of Continental origin, and is stated to be a hybrid of A. Thomsonii and A. Amellus. The colour is of a pleasing lavender. Beauty of Ronsdorf is a charming, compact-growing variety, with lilac-pink flowers. Variety Rudolph Goethe is a very free-flowering plant of upright, wiry habit, bearing large, lavender-blue flowers about three inches in diameter. A. Thomsonii should be included, as it continues to bloom for a very long period, from the end of July onwards. Perle Rose is a dwarf, sturdy, free-flowering variety with mauve flowers shaded pale rose-pink. Variety superbus, growing about two feet high, has flowers of a rich lavender-blue, and will be found a useful variety for many purposes. Variety Sonia, of recent introduction, is an acquisition to the section.

Hardy Cyclamens.—These charming plants are very interesting and attractive when in bloom. At the time of writing, a large colony of the autumn-flowering C. neapolitanum, under the shade of a Conifer, is attracting a great deal of attention. The leaves of this species are Ivy-shaped, and it is at times sent out under the name of C. hederaefolium. It forms large corms, from which spring a multitude of beautiful flowers in varying shades of pink and white, before its foliage begins to appear. All the hardy species are easily established and love the shade of trees and shrubs, where, if the soil is well prepared for their reception, they will give satisfaction for many years. A rich, friable soil with a little lime-rubble added, suits them admirably, with an annual top-dressing of decayed vegetable matter. Seeds are the usual means of propagation; these are freely produced and germinate readily if sown so soon as ripe. Large collected corms are slow in establishing themselves, and should be left undisturbed for at least two years. C. Atkinsii, a hybrid of the Coum section, has flowers a little larger than the type, varying in colour from pale pink to nearly crimson. C. coum is welcome during the dark days of winter and early spring, and should have a warm, sheltered nook in the rock garden, where its flowers can be protected from the winter storms.

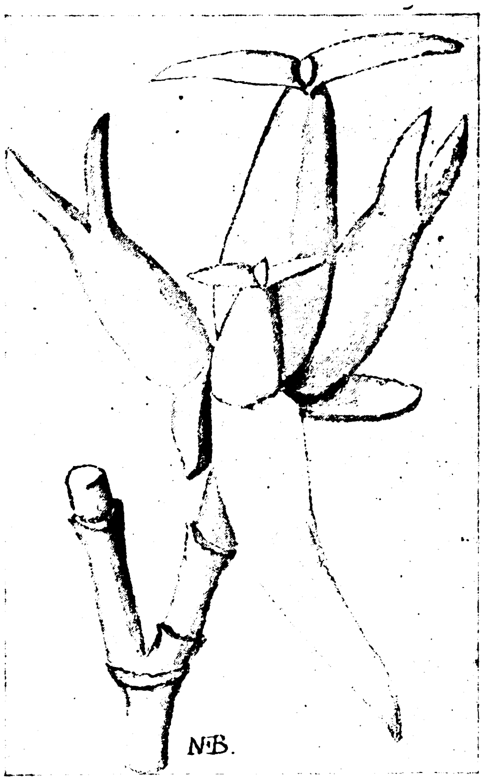

FIG. 117.—MITROPHYLLUM PROXIMUM, SCHWANT.

Branch of type plant when first imported, showing a terminal cluster of growths; natural size.

(see p. 248.)

THE KITCHEN GARDEN.

By W. G. STAWARD, Gardener to LADY MARGARET RYDER, Knowle Gardens, Dunster, Somerset.

Spring Cabbages.—When the plants are large enough, these should be planted at once. If the ground is dry, water it well before planting. The largest plants should be taken from the seed-bed first, so as to give the smaller ones more room for development. Dust around the plants with soot after planting to ward off slugs.

Cauliflowers.—Seedlings intended for early spring planting should, so soon as they are fit to handle, be pricked out into frames and kept perfectly hardy by giving plenty of air during the day. Shade the young plants for a few days after pricking them out.

Lettuces.—So soon as the recently-sown plants are fit to handle, prick them out into frames. These will turn in early in spring for cutting; All the Year Round and Felton King are two fine varieties for frame culture, and withstand winter cold and dampness fairly well.

Turnips.—Late-sown Turnips are now ready for thinning, which operation should be done carefully. Encourage quick growth by working the Dutch hoe between the lines to keep the surface soil open and weeds in check.

Endive.—Additional plantings of Endive may be made as ground and frames become vacant.

Maize.—During dry spells, Maize should have ample water supplied to the roots, otherwise the cobs will fail to swell satisfactorily; cut the cobs before the seeds become hard and dry.

Potatos.—Late Potatos are now ready for lifting. The crop suffered during the dry weather, and the haulm died off quickly through lack of moisture at the roots, and although the tubers may not be up to standard size, it is better to lift them now than to wait until the ground becomes wet again, when disease and decay may set in.

Rhubarb.—Good stools of Rhubarb should be selected for forcing, and the roots lifted and exposed.

FOR NORTHERN GARDENERS.

By JOHN HILL, Gardener to ANDREW ARTHUR, Esq. Rosemount, Monkton, Ayrshire.

Vegetables.—Earth up Celery when the soil and plants are dry, dusting them with air-slaked lime, or soot, or both, as the work proceeds. If rust is in evidence on the plants, flowers of sulphur should be mixed with the lime and soot. Encourage the growth of late Kale, Broccoli, Spinach and Onions by frequent use of the Dutch hoe during dry weather. Fill frames with Lettuces and Cauliflowers for spring planting, the soil used being sandy and of a rather poor quality, as slow, sturdy growth is necessary during the winter months. Use shallow frames or, alternatively, raise the bed well up to the glass and see that the lights are water-tight.

Cuttings.—Cuttings of Pentstemons, Calceolarias, Violas, Pansies and all plants of a like nature should now be inserted in beds of sandy soil. Animal or other manures should not be present in the cutting bed, equal parts of mould and rough sand added to the loam being ideal, with a layer of pure sand on the surface. The bed should be rather firm and the cuttings put in so that the general surface is not broken. Short cuttings are best in all cases, and they should not be inserted deeply. As in former cases, white-wash the glass so that the frame may be kept closed during the day, despite the sun, and admit air at night, or remove the lights should the weather be fine.

Protecting Dahlias, etc.—Beds of Dahlias and early-flowering Chrysanthemums should have erections placed over them to support blinds or mats, at short notice, if frost comes. Continue to house Chrysanthemums which are well set, but in cases where the buds have not appeared they are much better out-of-doors during the day. Before housing them spray all Chrysanthemum plants with lime-sulphur or sulphide of potassium to check the ravages of mildew and rust after housing, but allow the foliage to dry out-of-doors. Advantage should be taken of all dry spells to clear away all weeds, dead leaves, etc., and herbaceous plants should be cleared of their flowering stems, after which the ground should be well stirred with the hoe to admit air to the soil.

ALPINE GARDEN.

OXALIS VALDIVIENSIS.

A yellow-flowered Oxalis which has been growing in my garden for many years and whose name has hitherto been in doubt, has been identified by a botanical correspondent as O. valdiviensis. This species, which came from its native Chili in 1862, is described in some garden dictionaries as a herbaceous greenhouse perennial. Here we have always regarded it as a hardy biennial, perhaps wrongly, since individual plants will often survive a second or third season, provided they do not "bloom themselves to death." The thick, fleshy root of O. valdiviensis produces several crowns, from each of which arises a compact and upright tuft of leaves and flowering stems. These may be anything from three to fifteen inches in height, according to soil and situation. The trifoliate leaves, which average over one inch across, are a bright, cheerful green, and the flowers, which are borne in a two-branched head at the tips of their stately stalks, have the grace of some choice Primula. These blossoms, nearly as broad as a shilling on a well-grown plant, are a peculiarly lustrous yellow. They are distinctly rayed on the reverse with crimson, and the broad petals overlap in a well-rounded corolla of good substance.

O. valdiviensis is undoubtedly perfectly hardy in a well-drained, gritty loam, but it has a strange partiality for particular soils. Here, for example, it naturalises so abundantly that it often has to be weeded out, yet in a neighbour's garden it refuses to prosper under apparently similar conditions. But, vigorous as it is with me, O. valdiviensis is never a menace, even among rock plants, for, unlike some of its relations, it does not run underground or misbehave in any other aggressive manner. It is a plant that blooms with amazing prolificacy from April to November, and one that we find most useful as a temporary covering for bare soil between Heaths, dwarf Rhododendrons or any other recently-planted things. Although a sun-lover, this charming plant crops up in all manner of places here, and it is utterly indifferent to drought. So immune is it, indeed, from the troubles which beset so many subjects that I look upon it as one of the permanent furnishings of the garden which asks no attention and entails no expense. *A. T. J.*

FLOWER GARDEN.

ECHINOCYSTIS LOBATA.

The recent account of this North American Cucurbitaceous climber by T. H. Everett, of New York (*Gard. Chron.*, September 14, p. 209) has enlightened me, for the plant has been growing here for the first time this summer, and I was becoming puzzled as to its botanic name. The description he gives leaves me no longer in doubt as to its identity. Apparently, it is little known or grown in this country. It is not mentioned in Nicholson's *Dictionary of Gardening*, but receives notice in the *Century Supplement* to this work.

The seeds were given me by one of my maids. Her brother, who lives at Edmonton, in Canada, brought a quantity with him when on a visit to his old Cumberland home during the spring of last year. He informed his family that the plant is commonly grown out there to cover dwellings in summer, for the sake of coolness.

The seeds did not come into my hands until well into June of last year. Imagining early germination in heat to be necessary in order to give the plant a chance of making much of a display in our comparatively cool summer, I did not anticipate great results from a few seeds sown at the base of a south wall. As it happened, there was no germination at all, and my interest in the plant waned. Great was my surprise this spring in finding the seedlings coming up, in spite of the fact that the ground had in the meantime been dug over. Why these seeds failed to germinate the previous summer is not clear to me. My maid tells me that at her home, where the plant has now been growing for two summers, self-sown seedlings have appeared here and there. Evidently Echinocystis can readily raise itself from seeds in this climate without any artificial aid. Possibly it may prove itself somewhat of a nuisance by coming up where it is not wanted, but being an annual it can easily be weeded out.

The plant has shown itself to be a rampant climber with me and a wonderful clinger, its abundant and sensitive tendrils attaching themselves even to projecting bits of mortar. It has this summer scaled a ten foot wall and descended half way down the other (north) side. As I write, in mid-September, it is now out of flower and is ripening its seeds. These are dark brown in colour, somewhat of the size and shape of Marrow seeds, and four only are contained in each prickly, pendent fruit.

Although the individual staminate (male) flowers are tiny and very modestly coloured, their great abundance imparts a creamy, foam-like appearance to the plant. The tender green of the clean-cut foliage is distinctly refreshing to the eye. Both Mr. Everett and the *Dictionary Supplement* fail to mention one attraction, namely, the pervading fragrance of its flowers. This is quite noticeable when one is in the vicinity of the plant.

Echinocystis lobata can be recommended for covering rapidly any bare wall, unsightly erection, or rubbish heap. Care should be exercised in introducing it among choicer and less vigorous subjects, for from my experience it might be termed a smotherer, and therefore needs keeping apart. *J. Parkin, Blaithwaite, Wigton, Cumberland.*

IPOMOEAS.

The Ipomoeas are quick-growing climbing plants of high decorative value which an older generation treated entirely as stove plants and older text-books refer to them as the "Convolvuli of the stove." But although mostly of tropical or sub-tropical origin, I. purpurea and its numerous forms are admirably suited to outdoor cultivation, and in a season like the present one their brilliant flowers of delicate texture make a wonderfully effective display.

The plants are easily raised from seeds in the spring and if the seedlings are grown on in five-inch pots and planted out at the beginning of June they make rapid growth and continue to give a succession of flowers until the cold nights of autumn arrest growth. The best position is the base of a wall or pillar, fully exposed to the sun, but sheltered from the prevailing winds. *A. M. W.*

ORCHID NOTES AND GLEANINGS.

MASDEVALLIAS.

Where a varied collection of these interesting and free-flowering Orchids is grown, specimens may be had in flower practically the whole year round. Many of the strong-growing, brilliantly coloured kinds, such as M. coccinea, M. Veitchiana and varieties that have flowered during the summer months, and were not repotted in the spring, may require some attention at the roots, and now is a suitable time to repot any plants that are in need of larger receptacles or fresh compost, as fresh root action is now commencing and the plants should quickly become re-established if carefully repotted at this season.

Specimens that are overgrown and have lost their central leaves should be broken up and all decayed compost, dead roots and leafless rhizomes removed. Each portion may be potted separately in very small pots or pans, where they should establish themselves readily and be suitable for remaking into specimens early next spring. Healthy, robust plants that need larger receptacles may be potted on without great disturbance, provided the rooting material is in good condition; if it is not, remove all sour and decayed portions and renew with fresh material carefully worked in among and around the fleshy roots. Use well-drained pots, or deep pans for the robust growers, and a compost consisting of three parts Osmunda fibre, cut moderately fine, and one part chopped Sphagnum-moss, adding crushed crocks or broken charcoal to keep it open; a little extra Sphagnum-moss may be used for finishing off the surface.

The smaller-growing kinds, such as M. simula, M. triaristella, M. trichaete, M. ludibunda, and the free-flowering, sensitive-lipped species, M. muscosa, are best accommodated in small pans or baskets, which may be suspended or placed in a position near the roof glass. The dwarf kinds require only a small quantity of compost, and this should be made moderately firm, with the base of the plant resting on the top of the compost, just below the pan rim, allowing ample room for watering during the growing season, when established plants require copious supplies each time the soil appears dry.

After repotting, only small quantities of water should be given—just enough to moisten the compost; encourage root action by keeping the surroundings and pot moist by frequent syringings and damping during favourable weather until the roots are seen working through the fresh soil, when larger quantities of water may be given each time the compost requires moisture. Care should be taken, however, to avoid an excess of moisture at the roots or in the atmosphere during dull, cold weather and the short days of winter, or the unsightly black spot disease may soon appear on the foliage; also the leaves will begin to fall. If new leaves turn yellow and begin to fall, it is a sure sign of bad root action, and steps should be taken at once, by removing and renewing the compost and growing the plants in small receptacles until they have recovered their vigour. Any delay at this stage may lead to sickly plants for a long time, or result in their total loss.

Most of the Masdevallias thrive well in a shady part of the Odontoglossum house, where they are not subject to cold draughts; in cold districts the Chimerae Masdevallias are best grown at the cool end of the intermediate house during the winter months, and are best accommodated in baskets without any hard drainage material being used, to allow the flower spikes, which are often produced in a downward direction, to push through the openings in the baskets. The distinct, long, metallic-leaved species, M. deorsa, is seen to the best advantage when grown on a block of wood or on a teak-wood raft suspended from the roof. *W. G.*

INDOOR PLANTS.

RUSSELIA JUNCEA.

Russelias, of which there are four species, and one, R. Lemoinei, of hybrid origin, are natives of Mexico, and have been in cultivation at different times for a century. They are members of the Fig-wort Order, Scrophulariaceae, but are not so frequently grown outside botanical collections as formerly.

The three-feet-long, arching growth of Russelia juncea make it an admirable subject for growing in baskets suspended from the roof—a pleasing system adopted advantageously with plants of pendant growth, and which affords a change in the embellishment of conservatory and greenhouse throughout all seasons of the year.

Cultivation presents no difficulties. Cuttings are easily rooted in spring, and these, when well rooted, should be placed in the baskets, in a compost chiefly of sandy loam, and kept growing in genial warmth, until well developed and established for their removal to cooler quarters, as the season advances.

The light red flowers, borne upon the branchlets, are not produced profusely, although it is seldom from midsummer onwards over a lengthy period that the plant is not in flower.

An excellent use I observed made of this subject, was in a tropical public garden abroad. A long, narrow border was planted entirely with it to serve as a partition hedge; there were few flowers open at the time, but the characteristic deep green, Rush-like growth, justified its use for this purpose. *Frederick Gooch.*

LILIUM MARTAGON VAR. ALBUM.

IN the absence of any definite record of the beginning of the white-flowered variety of the Martagon Lily, it has been generally assumed to have had a garden origin. There is no evidence of this, however, nor is there any particular reason to suppose that the cultivation of plants encourages the production of albino forms. In such matters Nature does not seem to discriminate between one side of the garden hedge and the other. The Martagon Lily is a very old species with a wide distribution from Spain, through Europe into Asia, and in all that area albino forms should not be rare. Records of them, however, are undoubtedly rare, and such as are available are of recent date.

In 1890, M. Henri Correvon found three albino plants growing in the alpine herbage near Bourg Saint Pierre,* and in the summer of the present year Mr. H. Cowley found them growing abundantly in a wood above Madrano in the Val Ticino, near Mont St. Gothard.† When Visiani found the dusky form of L. Martagon he called Cattaniae,‡ on the Dalmatian coast, he made no mention of a wild white-flowered variety as, assuredly, he would have, if he had seen one. Max Leichtlin, who collected the variety dalmaticum § of L. Martagon in the neighbourhood of Krivoscie on the frontier of Montenegro and Albania, and introduced it to cultivation in 1875, told me that he saw no white form of it; but in 1903 he sent me some bulbs of an albino form which had come spontaneously among some seedlings of L. M. var. dalmaticum in his garden at Baden-Baden. Except for the colour, this white form of L. M. var. dalmaticum, of which I have distributed many bulbs to friends, is a replica of the typical variety and stands apart from what may be called the ordinary form of L. Martagon var. album. The colour is not white, but ivory; the flowers are large and the petals more waxy than in the latter; the anthers are golden and the nectariferous furrow a brilliant larch-green. The habit and stature of this Lily are comparable to that of dalmaticum. Under seminal propagation about a third of the seedlings come true. This white form of L. Martagon var. dalmaticum has been distributed as L. Martagon var. album superbum, no doubt, to distinguish it from the ordinary form, but I can find no official publication of the name, and it was probably first used in a nurseryman's catalogue.

In illustration of the spontaneous origin of this fine albino, Messrs. Stormonth, of Kirkbride, report‖ that some years ago seeds of the so-called L. Martagon var. album superbum gave good forms of the variety dalmaticum and included one or two with white markings in the centre of the petals. Seeds of the latter varieties threw several fine, all-white forms.

The poverty of recorded examples of the wild albino form of L. Martagon var. album may reasonably be explained by the fact that it has not naturally so robust a constitution as the type, and propagates itself vegetatively. On the other hand, early records of the Lily in gardens are equally rare and the inevitable result of his researches is to leave the student in doubt as to the early history of the plant. The point is one solely of historical interest, for, as indicated above, the albino form is undoubtedly of spontaneous origin.

The garden history of the Lily is not rich in detail. There is no mention of it in the list of cultivated plants Gerard published in 1596,¶ and it was apparently unknown to Linnaeus. In his *Paradisus* (1629) Parkinson called the variety, Martagon Flore Albo and wrote of it: "We have also some other of this kind, the first whereof hath his stalke and leafe greener than the former, the stalke is a little higher, but not bearing so thicke a head of flowers, although much more plentifull than the lesser Mountaine Lilly, being altogether of a fine white colour, without any spots, or but very few, and that but sometimes also; the pendents in the middle of this flower are not red, as the former, but yellow; the roote of this, and of the other two that follow,* are of a pale yellow colour, the cloves or scales of them being brittle, but not closely compact, yet so as if two, and sometimes three scales or cloves grew one upon the head or upperpart of another; which difference is a speciall note to know these three kindes, from any other kinde of Mountaine Lilly, as in all old rootes that I have seene, I have observed, as also in them that are reasonably well growne, but in the young rootes it is not yet so manifest."

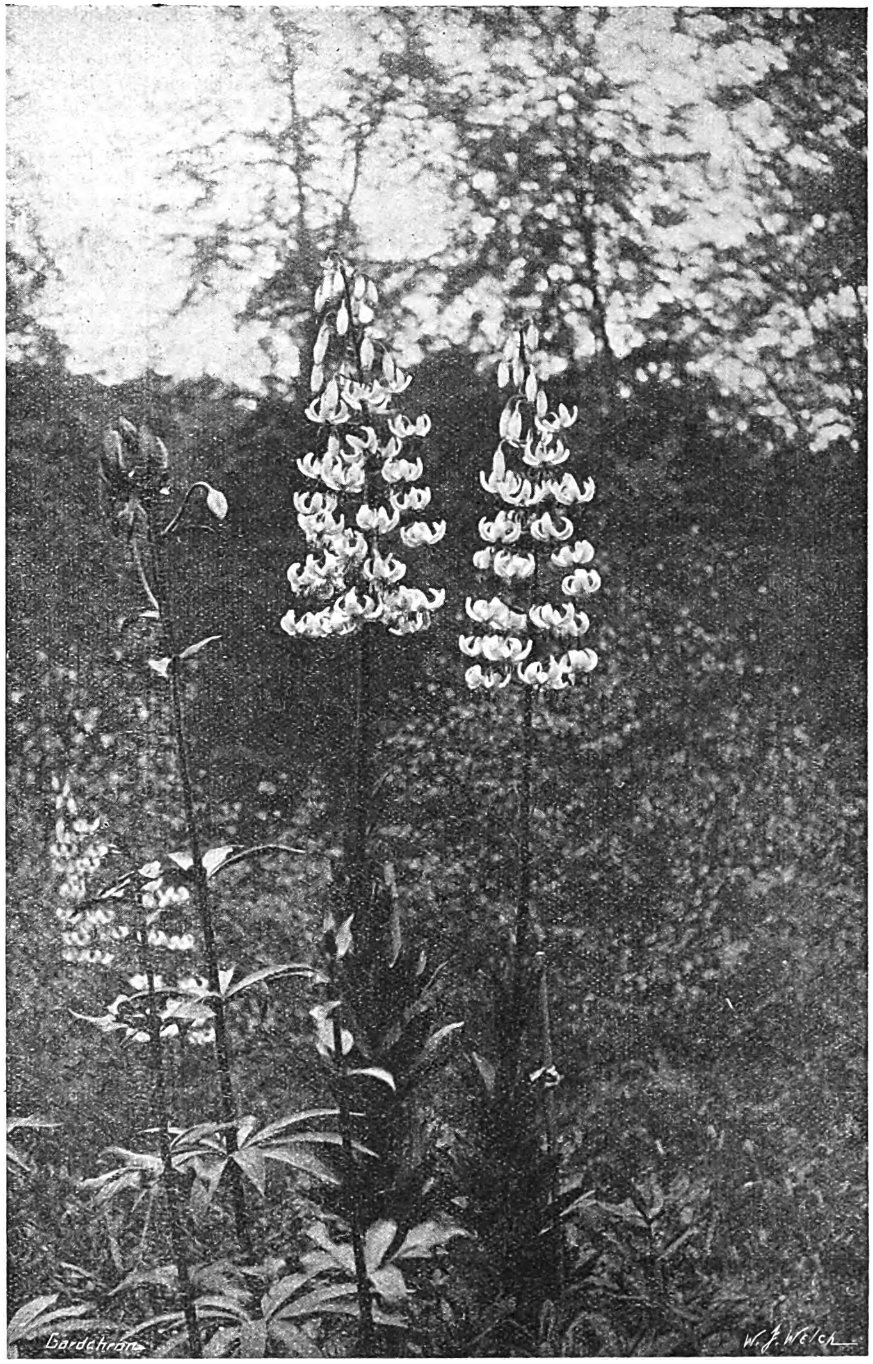

FIG. 118.—LILIUM MARTAGON VAR. ALBUM IN SIR J. B. FARMER'S GARDEN AT GERRARD'S CROSS, 1913.

Parkinson also wrote of a form of the white Martagon Lily in which "the flowers are not altogether so white, and besides hath many reddish spots on the inside of the leaves of the flowers," as he called the petals, "and the stalke also is not so greene but brownish."

It seems clear that in a general way the cultivated forms of the white Martagon Lily have not altered much since Parkinson's day, and in the absence of formal publication we have to rely on what he tells us about them. They have been taken in hand, however, by Dutch nurserymen, and an attempt made to segregate them into groups in which the white basic colour of the petals is freckled or marked or suffused more or less heavily with the purple of the type. In some of these colour varieties the tips of the petals only show a trace of purple; in others the colour is only noticeable on the reverse of the petals, and none of them is to be confused with those seedling forms of L. Martagon in which the petal colour is that of a faint blush. Names have been given to the albino forms, such as purpureo maculato, but except as curiosities, they are hardly worth growing. The flowers are usually small, often no larger than a florin, the stature is usually poor, and it cannot be sufficiently understood that none of them is L. Martagon var. album, for which they are so often sold. Except for the green furrow the latter has no trace of colour about its petals, which are paper-white.

Although the percentage of true germination varies within wide limits, these colour forms may make their appearance in every batch of seedlings raised from L. Martagon var. album, but there are some forms of the latter which throw a greater proportion of white-flowered seedlings than other forms do. Anyone wishing to raise the white form from seeds should choose only the seeds from the finest plants in which the petals are innocent of any suspicion of colour; but the surest way is to propagate vegetatively, that is, by scales, stem cuttings or stem bulblets. If the stem of L. Martagon var. album is wrenched from the bulb by a quick, twisting pull and "heeled" into the ground, a number of small bulbs will form on that part of the stem which is below ground. The process is assisted if the stem is notched with a pen-knife, for in every notch a small bulb will form. The time for the operation is just when the flowers are fading, and it is perhaps needless to point out thatfthe ground about the buried stem should not be allowed to dry.

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* *La Flore Alpine*, p. 404, 1909.
† *Gardening Illustrated.* Ap. 24, 1929, p. 581.
‡ *Amico dei campi*, p. 113, 1865.
§ *Flore des Serres*, 2,127, 1874.
‖ Letter, Sept. 14, 1929.
¶ *Catalogus arborum, fruticum ac plantarum*, J. Gerardl.

* Refers to the white, spotted Martagon and the blush Martagon.

Happily, propagation is assisted by the numerous little bulbs which naturally form in the scales of the mother bulbs of the Martagon Lily. This is specially the case in poor ground, and often a mother bulb will be found to have broken up into a mass of small, independent bulbs, each with roots. When this happens, the bulb should be lifted, washed in a kitchen sieve, and each little bulb planted in a nursery bed. From a three-inch bulb I once took 123 small bulbs, varying in size from a Filbert to a Pea, as well as a handful of scales, to each of which was attached a bulblet of minute size. The latter should be panned for a time.

Like so many other Lilies, L. Martagon var. album has a disturbing habit of flowering bravely for four or five years, growing taller and more flowery in good seasons as the years pass. Then, just, perhaps, as the grower has cozened himself into thinking that he has mastered the cultivation of the plant, it will fail him and content itself by throwing up a few puny stems. The fact seems to be that when in comfortable surroundings the Lily prospers until it reaches its optimum, and then falls away. It cannot be stated that all the members of the genus behave in this way, because many of them travel about underground, continually finding fresh places for themselves; but those with bulbs of the type of L. Martagon often break up in the manner indicated. The cultivator's remedy is to recognise the peculiarities of the plant and when the time comes, lift the mother bulbs, treat them as already described and renew the clumps from his reserve beds. The peculiarity indicated above seems to apply more consistently to the white Martagon Lily than to the type and probably accounts for the scarcity of old examples or old clumps of it.

L. Martagon var. album is in no sense calcifugal, and I have grown specimens in ground in which there was enough chalk almost to blanch the leaves. But lime is not essential to this Lily, which is at its best in a "holding," sandy loam. It will grow in dry places and in the eye of the sun, but is happier in broken shade with moisture within reach of the roots. Slugs are peculiarly partial to the bulbs, which are of so acrid a nature that mice rarely touch them. L. Martagon and its varieties often have primitive aerial roots at the base of the stem. *A. Grove.*

PLANTS NEW OR NOTEWORTHY.

TWO NEW GARDEN ANNUALS.

The following two new species of Dorotheanthus are pretty garden annuals, of which good dried material and seeds were sent to me last year by Dr. J. Muir. In general appearance they both resemble D. bellidiformis, N. E. Br., better known as Mesembryanthemum criniflorum, but differing in their flowers and characters mentioned below. Both are glabrous and covered with glittering, watery papulae, especially upon the underside of the leaves.

Dorotheanthus oculatus, N. E. Br.—Leaves ½-2 inches long, 1½-7 inches broad, narrowly spathulate-lanceolate to somewhat cuneately linear, acute. Pedicels 1½–2 inches long. Calyx with its longer lobes 3-4 lines long, becoming 6–9 lines long in fruit. Corolla 1¼-1½ inch in diameter; petals notched or toothed at the apex, varying in colour, but always with a dark purple spot at the base. Stamens with the filaments and anthers entirely of a rich, dark purple. Stigmas 5-7, erect, ½-1 line long, dark purple, becoming 2-4 lines long in fruit and less spreading than in D. bellidiformis. Capsule 5-6 (rarely up to 8) lines in diameter.—D. criniflorus, L. Bol. in *S. Afr. Gard.*, 1928, p. 126, and *Notes on Mes.* I, p. 54 and 56 (with Fig.). Stigmatocarpum criniflorum, L. Bol. in *S. Afr. Gard.*, 1927, p. 326, and *Notes on Mes.* I, p. 82; not Mesembryanthemum criniflorum, Linne.

Malmesbury Division: Vicinity of Buck Bay; cultivated specimens, Muir 4,290!

Dorotheanthus Muirii, N. E. Br.—Leaves ½-2 inches long, ¾-2½ lines broad, linear to spathulately linear-lanceolate, acute or obtuse. Pedicels ¾-2 inches long. Calyx with the longer lobes about 3 lines long, becoming 4-8 lines long in fruit, linear or slightly dilated upwards from a deltoid base, obtuse. Corolla 1-1½ inch in diameter; petals obtuse or notched at the apex, rose-pink, without a darker spot at the base. Filaments of the stamens whitish or slightly tinted with rose; anthers pale yellow. Stigmas 5, recurved-spreading, about 1 line long, whitish, rosy at the basal part, becoming 2½-3 lines long in fruit. Capsule 4-5 lines in diameter.

Riversdale Division: Growing only in the sandy coast-belt, at Rietvlei, Muir 967; near Albertinia, Muir 4,291; Melkhoutfontein, Muir 4,292; and Droogevlakte, 400 feet altitude, Muir 4,293. *N. E. Brown.*

NOTES FROM WISLEY.

It is in such seasons as the present that the value of good cultivation is made evident, and in no garden is this shown to better advantage than at Wisley where, although no rain has fallen for many weeks, the numerous visitors are greeted with several magnificent displays of flowers.

The value of the annual Aster as a dry-season plant is well demonstrated by the trial of numerous types and varieties of this subject now in progress in the recently laid-out flower trial grounds. Here some twenty-one thousand plants form an unbroken drift of wonderful colouring, in every shade of white, cream, pink to deep red, and lilac to deep purple, and a visit to Wisley to see these alone would be well worth while. The Asters are planted in their various sections, ranging from the small, button-flowered Lilliput type—quaintly attractive and compact in growth—to the Californian and Victoria Giant, and magnificent Ostrich Plume sorts. The single-flowered sorts are also very fine and in most instances very free, while the Anemone-flowered varieties will also appeal to many.

Another interesting trial is that of annual Gaillardias, a fine bed of these being now in full bloom; the flowers are in shades of cream, orange and red, and of varying size and form.

A trial which should be of interest—it was instituted this year and is to become permanent—is that of early-flowering Chrysanthemums, of which three-hundred-and-fifty-two varieties have already been received this year. As they were planted late and the weather has been very much against them, these will be judged for the first time next year, when they should make an extremely attractive display.

Wisley in autumn might well be termed the Mecca of Dahlia enthusiasts, for all who are interested in this popular flower make a point of visiting the Dahlia trial at least once during the season. The Dahlias are grown under ordinary garden conditions, no disbudding or other operations designed for the production of specimen blooms being practised, so that the visitor is able to appraise each variety at its garden value. The colour picture produced by these Dahlias can only be described as unique, and as all the varieties are of first-class merit, the difficulty lies in selecting the best.

They are planted in their various sections, the Paeony-flowered, both small and large, taking the lead in floriferousness, closely followed by the Decorative sorts. The vast improvement that has taken place within recent years in Cactus Dahlias is shown to the full in this trial, for whereas the Cactus Dahlia of bygone days hid its flowers very effectively among its foliage, the modern varieties, as exemplified at Wisley, hold their lovely blooms well above the leaves. Another feature of the Dahlia trial this year is the inclusion of a series of varieties—large-flowered Decorative sorts—from British Columbia, but although these are of interest in demonstrating the type of Dahlia popular in their land of origin, none of them can be regarded as an improvement upon the varieties now in general cultivation in this country.

In several parts of the gardens the effect of the shortage of rain is evident, the lawns in exposed positions being particularly dry and parched, but it is surprising how fresh and verdant the gardens are generally.

In Seven Acres, for instance, which but a few years ago was a grassland waste, the trees and shrubs in the broad borders have made surprising growth, and a number of them are fruiting well, although fruits are not so evident as in former years; however, the large bed of hybrid Barberries on the pond side should prove a source of great attraction in the course of a week or two. The pond itself is bright with many Water Lilies of vigorous habit, while at one end a bright splash of colour is provided by the bright blue spikes of a mass of Pontederia cordata.

One of the chief features in this section is the Heath garden, which has been a success since its inception. Although at the present time few Heaths are in flower, exceptions are found in the Daboecias, which form lovely undulating drifts of colour, while the several varieties of Erica vagans, although now past their best, still carry sufficient blooms to add to the generally pleasing effect.

In the several ponds, dotted about the gardens, the Water Lilies continue to produce their lovely blooms, while on the margin of one of the ponds is a very effective bed of the rich orange-yellow flowered Senecio Clivorum, an ideal waterside plant.

Numerous Michaelmas Daisies contribute greatly to the pleasing effect obtaining in the herbaceous borders; incidentally, the various forms of Aster Amellus are worth inspecting in the trial quarters, where large clumps of many grand varieties are now in full bloom.

The herbaceous borders have been skilfully designed, so that even at this season there is no preponderence of one colour; which is as it should be. Although the perennial Asters are greatly in evidence, the varieties present a considerable range of colour shades. Yellow, a colour which is apt to dominate the border in autumn, is provided sparingly by various Heleniums, Rudbeckias and Helianthuses so placed as to lighten the borders but not to dominate them, while other subjects which add their quota to the general colourful display are various Salvias, including the dainty Salvia farinosa, in one clump of which there is a pure white sport, and S. Horminum, with its rich purple bracts; several silvery-foliaged Artemisias; the tall-growing Gypsophila Rokejeka, with its giant sprays of small, pink-tinted flowers; Monarda fistulosa, still flowering freely; the various forms of Sedum spectabile and several Coreopses, including the dainty C. verticillata.

At the laboratory end of the shrub border which borders the drive leading to the propagating department, a grand specimen of the rather tender Clerodendron trichotomum is in full flower, while against the wall of the laboratory Clerodendron foetidum is flowering freely next to a young specimen of the attractive Azara microphylla var. variegata, while close to it Caryopteris glutinosa is also laden with blooms.

So it will be seen that, although the season is fast drawing to its close, flowers are by no means lacking at Wisley, in fact, in some quarters they are very much in evidence, while even in the wild garden and on the rock garden there is still much of interest to be seen, and the Roses in the borders flanking the main walk have bedecked themselves in a bright array of blooms preparatory to seeking their winter repose.

Lastly, the visitor may be recommended to visit the exhibition fruit room, another recently acquired attraction, to inspect the specimen fruits of numerous Apples and Pears, all instructively labelled with their season of use and purpose. *F.*

NOTES FROM A WELSH GARDEN.

Kirengeshoma palmata is now (early September) at its best, but it will continue to yield its abundant blossoms until November frosts come along, having been flowering for nearly three months. This singularly ornamental plant is an admirable subject for a half-shaded corner where the soil is well-drained, cool and deep. My old clump is now nearly six feet across, and fully a yard in height. Some of the vine-like leaves are nine inches in diameter, and over and around the great mass are displayed the elegantly drooping flower flights, their glossy, wine-red stalks tipped with the ivory-yellow of bud and blossom. Along with this Japanese curiosity is a lusty colony of Gentian asclepiadea whose violet and blue flowers have in those of their companion a harmonious association. Some of the Clethras are occupying this cool corner, C. canescens excelling C. alnifolia in the size and shapeliness of its creamy trusses, while both of them yield a fresh Hawthorn fragrance.

Crowning a little elevation at the margin of a small pool is the silver-leaved Salix lanata var. Stuartii. Polygonum vaccinifolium carpets the ground about the Willow and drops its curtain of rose-pink flowers over the edge into the water on whose immediate surface are floating the prettily-dappled, bronzy leaves and delightful little primrose-yellow flowers of that tiny Nymphaea, N. pygmaea var. helvola. At the opposite side of the pool are the decorative leafage and bright blue spikes of Pontederia cordata, the "Jamaican Water Plantain," which happens to come from North America, and among some bigger things is the stately foliage and flower panicles of Cyperus longus. If this plant cannot equal the grace of some of its more aristocratic relations, it has a rare elegance combined with an ability to resist wind, and it does not offend very seriously by escaping from its restricted corner.

That excellent little shrub, Phyllothamnus erectus has, as it often does, produced a late crop of its delightful rose-pink flowers. Gaultheria procumbens, the last of a small collection to flower, is carrying a cheerful array of pink and white bells, most of the remainder of the genus being in fruit. The exceedingly dry season, however, has done much to mar the harvesting prospects of these little shrubs. G. cuneata has some nice clusters of its snow-white berries; G. antipoda a few bunches of crimson ones, and G. perplexa is hiding beneath its spindly twigs and narrow leaves a promising show of rosy-white. G. tricophylla, perhaps the most delightful of all, also gives us a small late yield of its fat, china-blue berries, but the drought has brought about a complete failure of all the taller kinds. Perhaps the finest berry-bearing shrub in the garden during late August and early September is Cotoneaster bullata. This splendid shrub, or small tree, never fails to crop heavily. Its berries, in large drooping clusters, are a rich glossy crimson and nearly half-an-inch across, the habit of the species is singularly pleasing, and the handsome leaves colour well in autumn. Unfortunately the blackbirds are too fond of these fruits, whereas those of Euonymus planipes, close by, are untouched. This Japanese Spindle rivals the above Cotoneaster as an early-fruiting shrub of great merit, its blood-red, five-lobed "lanterns" with their orange seeds swinging at the ends of slender stalks in quantities from every branch. The leaves of E. planipes turn a fine yellow just before they fall, at which stage fruits and foliage together create a most brilliant glow of colour.

The hot, dry season has suited the Ceratostigmas, even the tardy C. Griffithii flowering freely before its usual date here. As a flowering shrub, that species is not, in my opinion, so pleasing as C. Willmottianum, but its foliage is certainly attractive. As for the old C. plumbaginoides, Lady Larpent's Leadwort, this easily holds its own against the above two. Its extreme hardiness is, of course, in its favour, it will flourish in the most arid of sun-beaten soils or dry wall, its deep blue flowers are larger than those of the others, and the autumn leaf colour which it develops will not be past unnoticed in the late autumn rock garden.

Pentstemon Eatonii, with tubular flowers of a brilliant scarlet, promises to be as useful a plant here as it has proved elsewhere, but I have been even better pleased with P. utahensis. The large and ample blossoms of the latter species are a most delicate shade of palest lavender, luminous with opal lights. So refined in hue are these exquisite blossoms that they make those of P. heterophyllus look positively gross, and even the charming bugles of P. Scouleri at their best are anything but improved by the comparison.

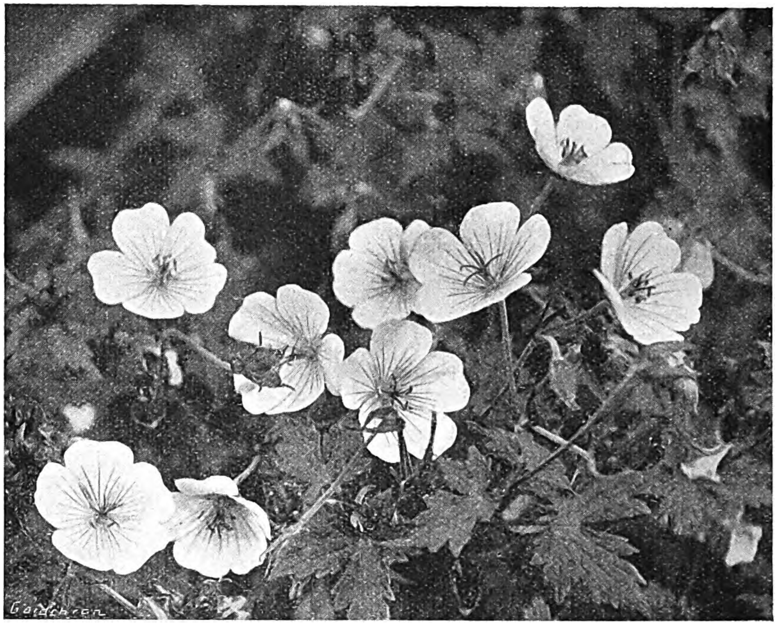

FIG. 119.—GERANIUM WALLICHIANUM VAR. E. C. BUXTON.

A colony of Allium Beesianum is flowering freely in the thin shade of some American Rose species, the Harebell-blue of their drooping clusters being more pleasing in a subdued light. Hard-by these, and also in part shade, is a group of Geranium Wallichianum var. E. C. Buxton (Fig. 119). This is undoubtedly the best of all the later Geraniums, and one that would not be eclipsed by many of any other season. I find this admirable plant comes very fairly true from seeds, but there is no doubt that the colour varies a little with the season, a plant that shows a distinct shade of the ancestral red one year being quite a good blue the next. This, of course, applies to many flowers, but it has to be reckoned with by those who expect the best of Buxton's Geranium, and the fact that this is a shade plant and a lover of cool, rocky soil must also be realised if one is to get the full beauty of the white-zoned, Nemophila-blue flowers.

Calceolaria chelidonifolium is a cheerful and pretty little plant, one of those useful things which take care of themselves and crop up in unexpected places. Sir Herbert Maxwell, who kindly gave me seeds of this species, will, I am sure, be interested to learn that seedlings of this Calceolaria not only survived last winter here, but that the plant is as firmly naturalised as it is in his own beautiful garden. Linum campanulatum of the lists, which is so close to L. flavum as to be almost indistinguishable, is always a trustworthy late-bloomer on a dry rock garden ledge, and here many of the Erodiums will give a hearty yield of blossom until November. The clear rich blue rays of Felicia rotundifolia, so effectively centred by the yellow disk, will not pass unobserved among these sun-worshippers. This is, of course, not a hardy plant, but one of such quality and charm that it is always worth while wintering a pot of cuttings in a cold frame. No less can be written of the more uncommon F. abyssinica, which has finely-cut foliage and flowers of a cool rosy-lavender. Aster Thompsonii and A. T. var. nana, the one in the border and the other among the rock plants, are both admirable subjects full of quality and goodwill, and the long, narrow rays of their delightful blossoms are a most appealing shade of lavender-blue.

Kniphofia Macowanii is an August-September bloomer of such reliability and high merit that one is surprised it has not made more headway into popularity during the fifty odd years it has been with us. It has, I believe, been freely used in hybridising, but the true plant with its very moderate tufts of dark green leaves, sturdy stems two feet long and large, cone-shaped inflorescences, glowing with scarlet and orange, are exceedingly useful in the mixed border, the rock garden or open woodland. Moreover, I have found this Kniphofia much hardier than many of its kind. Another good old border plant which seems to be getting overlooked, is Tritonia rosea. The fresh, shrimpy rose-pink of the flowers which it yields so abundantly from midsummer to November is an uncommon and attractive colour, and as pleasing indoors as it is in the border. The plant never offends by spreading unduly, it is perfectly hardy in a really dry, gritty soil, and is very useful for associating with other subjects of delicate colouring, such as the Cypellas and some of the Moraeas. The flowers of the above Tritonia are much the same colour as those of Acantholimon venustum, for which also no spot is too hot and dry. This plant is, of course, long past flowering, but the chaffy cups which encased the flowers and which are still retained are decidedly ornamental. The glaucous, spiny mound of the plant bristles with the gracefully-curved spent flowering stems, each of which from base to tip, carries an array of these delicately-cut, little, papery wine-glasses in a warm tan-brown. *A. T. Johnson, Ro Wen, Conway, N. Wales.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXI.—UP THE RIDGE.

OUR chief reconnaissances were undertaken on August 18, 19, 21, 28, and September 2. On August 18, the day after we arrived at our new camp, I went up the ridge alone, to seek the path, but did not get very far. Next day, Buttercup and I went out, taking Hubble with us. Before long we reached the beginning of the Abies forest, where I was delighted to find the yellow Bryocarpum quite common. We soon reached the end of the path, and set Hubble to cut a way through the dense growth of 'Falconeri' Rhododendron, now a beautiful sight; for the bushes had opened out their silvery-white leaves which shot up in fountains among the warm red-brown and bottle-green of the old foliage. I noticed also the cherry-red Enkianthus, and a stiff-leafed Ilex of which I wanted seeds. Viburnum Wardii was plentiful, and so were several of the Kaso Rhododendrons, including the big tree 'Lacteum,' and R. Keysii. While we were hacking our way through solid forest, and climbing steeply, the rain came down in sheets. We reached the summit we were aiming at, but, of course, could see nothing; and having done enough for one day, we returned to camp, only to find that it had not rained there at all! (This was at the beginning of the drought, when we were shouting for water).

On August 21, we tried again, and after cutting the path a little further, picked up another trail, which we lost about a mile on. Meanwhile, the ridge had descended, and climbed again. We were slowly feeling our way towards the distant peak, and meanwhile I found some more of the Rhododendrons; but towards the end we lost the ridge, and could not discover in which direction to cast.

During the following week I explored some of the gullies we had found, looking for Primulas, and, on the 23rd, in a north gulley, I had the good fortune to find the new 'Geranioides' Primula, and also the sunny-yellow 'Candelabra.' "Now," thought I to myself, "we'll soon have the red Sikkimensis." But I was wrong. Another nice plant in these north gullies was a Nummularia with ascending stems and nodding flowers leaning out of the leaf-axils on longish stalks. It was bright and perky, buttering the rocks with a placid yellow colour. There was also a Buddleia, almost herbaceous, its weak stems leaning floppily down the steep face, as though too tired to hold up the large leaves and clotted, orange-eyed flowers. Even if it grew upright it would never attain five feet, but the flowers are deliciously scented. While I was scouting around these gullies, and Hubble was below looking for food, Buttercup took on the tedious job of fagging water from the spring I had discovered; a full petrol can a day was our ration.

On August 28 we made a third assault on the alpine region, and actually reached the main divide and an alpine top, beyond which the provoking ridge dipped down once more into Rhododendron-Abies forest. However, I found the pink 'Barbatum,' the big-leafed 'Barbatum' and R. tephropeplum. I also noticed in fruit a small alpine Gaultheria which I had not seen on Kaso; it had ascending or erect stems, covered with mossy leaves, from among which peeped bright rose-pink 'berries.'

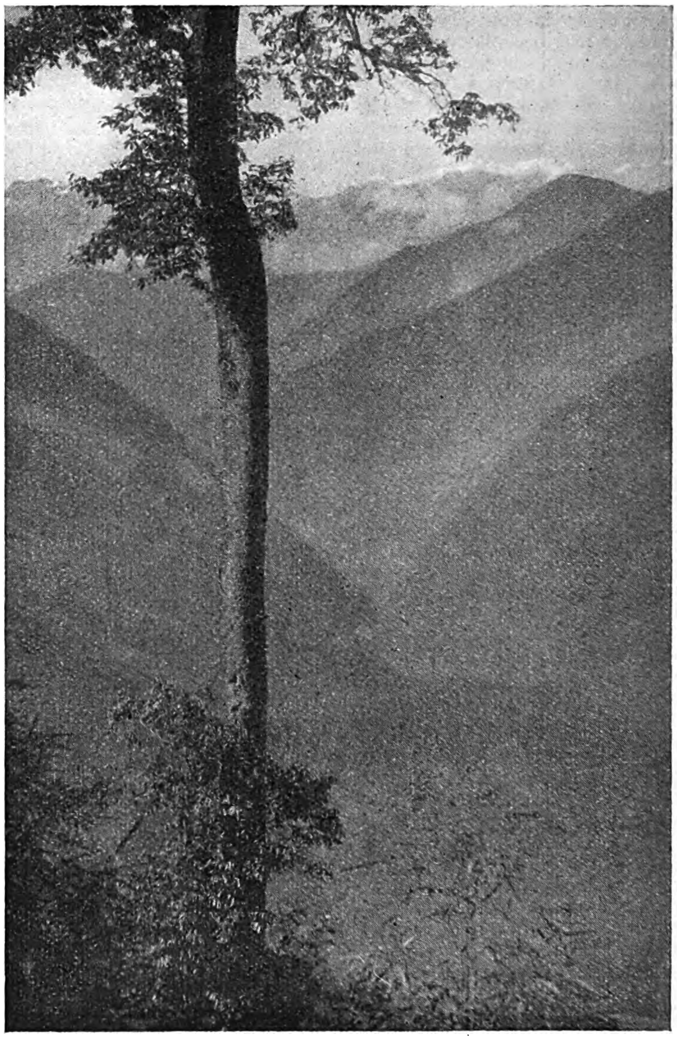

FIG. 120.—THE DELEI VALLEY.

The only new Rhododendron I found was a form of R. virgatum in fruit; but in some of the higher gullies there were autumn plants in flower, which had overflowed from the teeming Alps; mostly tall herbs, such as Rodgersia, Astilbe, a yellow Salvia, a Geranium with lurid crimson flowers, the purple or magenta Caltha, several species of Impatiens, and more of Polygonum, one with fluffy clouds of snow-white flowers, and a Phlomis. But the plant I was in search of, the one I most wanted to find, was the lovely red 'Sikkimensis' Primula—the world would be well lost for it, and the possibility of not finding it cost me many a sleepless night. I descended several good-looking gullies, starting at ever higher levels as we worked our way along the ridge, but all to no purpose; the only other Primulas I found were P. prenantha and P. vernicosa, both of them rather poor stuff.

It will be seen from what has been written above that circumstances compelled us to do over again in August and September the work already done in June and July. It seemed a sinful waste of time. Of course, we found a few new plants, particularly autumn-flowering species; but we were engaged principally in re-discovering old ones. Had our new camp been higher up the valley, instead of lower down, we might have found all the Kaso plants quickly, and a whole new crop of alpines as well. Explorers have told me that it takes three years to achieve results in a virgin field. The first year is spent in reconnaissance—ways and means, routes, camping grounds, resources, transport conditions, work to be done, and so forth. In the second year, the real work is done, or as much of it as possible. The third year is devoted to 'mopping up'—but this might easily be dispensed with; two years, however, are essential to success. I am afraid that the Delei Valley will have to be left to my successors; the jungle is not 'calling' for me as the desert is said to 'call' for popular explorers—by themselves. In fact, I should not feel that I had missed anything in life if I never saw the Delei Valley again.

On September 2 we made another effort to reach Polon, and followed the ridge some distance beyond the first alpine top, going steadily down, down into the forest again through dense thickets of Bamboo and 'Falconeri' Rhododendrons, with scattered Abies and 'Barbatum' Rhododendrons. Worse still, after descending several hundred feet, the path once again came to an end (or appeared to do so) although why there should be a path along the ridge, unless it continued to Polon, was a mystery. We knew that the peak was quite close, but we could see nothing on account of the dense clouds which were rolling up from the deep valleys on either side. I find in my diary for that day the following significant remark: "Thus we have carried the reconnaissance a step further, but shall never find the route to Polon until we have a really fine day and can see what we are doing." After I had written that, it rained for six weeks!

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; Sept. 7, 14, 1929.

Thus, from the day we arrived in Camp VI, we set to work to find the best plants discovered on Kaso, and this proved a double labour, since they were no longer in flower. It was certain, however, that we would not find all of them, and the only way to get seeds of the rarest species, and of those which were not merely rare, but unique,[*] was to return to Kaso. It might, we thought, be possible to reach Kaso by following the main divide along the crest of the ridge; when the clouds rolled by Kaso was mainly visible about fifteen miles distant, but part of the ridge was hidden by an intervening peak called Polon. Our first object in life, therefore, was to climb Polon, and see how the land lay on the other side.

Every week I went over the lists of seed plants and wrote off those which had been found on Polon ridge, and noticed with satisfaction that the tale of those which remained to be found dwindled steadily. I had all the Kaso plants marked, and if we did not find them on Polon, and could not get at them over the top of Polon, then I would have to return to Kaso by the valley—a thing to be avoided at all costs. By the end of August I had written off half my liabilities; but the debts which could be considered good did not include the best things. A trip to Kaso was inevitable. Meanwhile, among other plants which had been found, were the small, pink Rose, the polygon-leafed Podophyllum, Rhododendron Lindleyi, the purple 'Brachyanthum' Rhododendron and the silver-leafed 'Boothii.'

Magnolia rostrata was fairly common.—I saw one magnificent specimen in fruit which must have borne fifty or sixty flowers, and the whole perfectly situated on an open slope below the ridge, so that one looked plumb on to it; unfortunately, we did not happen to be here in May. M. globosa, on the other hand, which was so common on Kaso, was absent from Polon, its place being taken by the species described in the last chapter. M. mollicomata, the eastern form of M. Campbellii, I did not see at all; and the only other Magnolia seen here was a sub-tropical species with very small cones. It grows at 4,000 to 5,000 feet, but I did not see it in flower.

The nearer the mountains approach the plains the more the pressure of the Indo-Malayan flora is felt, so that at the same altitude, the mountain flora is very different at the lower end of the Delei Valley, say, and at its head; for the head of the valley is in contact with the Tibetan flora, which likewise makes its influence felt.

In other words, the composition of the mountain flora is influenced by the adjacent floral region, although it maintains its character as temperate rain forest, Conifer forest, alpine, meadow, and so on. Then again, valley and mountain, at the same altitude have many unlike species; so that the flora changes rapidly as one climbs these frontier ranges. Kaso Ridge and Polon Ridge were about ten miles apart, and quite a number of species were absent from the one which were found on the other. Kaso Ridge, of course, being connected with the higher peak, was much richer in alpine species, but as we were not on Polon when these plants—the dwarf Iris, spotted Nomocharis, Cypripediums, and most of the Primulas, for instance—were in flower, it is, perhaps, unwise to state that they do not grow there, although we did not see them. *F. Kingdon Ward.*

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[*] I use the word *unique* advisedly to distinguish those plants of which a solitary specimen, or half-a-dozen specimens in one spot, were discovered; believing them to be the only specimens in existence. Thus the two new 'Barbatum' Rhododendrons, K.W. 8255 and K.W. 8431, are *unique*.

PROBLEMS OF PLANT LIFE.[*]

IX.—Breathing Pores or Stomata.

(*Continued from p. 208.*)

It is difficult, in the present state of our knowledge, to realise what ideas the old-time students of plant physiology had before the discovery of stomata. This discovery opened up a new world, and made the analogy between plant and animal appear much closer than it could have done before. To think that plants had mouths, and breathed or transpired by their means! In some respects they suggested the gills of fishes, in others the spiracles of insects, and in yet other respects they seemed to be analogous to the mouths of animals and man.

It had already been observed that plants "wept," although their eyes had not been discovered, and other actions characteristic of animals had been noted, but the process of taking in air by the leaves was unimaginable. So late as the days of Malpighi (1628-94), the idea prevailed that plants took up air by means of their roots from the soil, since leaves possessed no openings which could be used for such a purpose. Yet Malpighi worked for ten years on vegetable anatomy before he submitted the results of his investigations to the Royal Society. The published report shows that he had given careful attention to the structure of the bark, wood and pith, as well as to buds and leaves, flowers and fruits. He knew that cells, or utriculi entered into their structure, and that spiral vessels existed. But the stomata escaped his observation. How much of interest the discovery, if he had made it, would have added to his attempts to demonstrate the similarities between vegetable and animal organisms and their functions! True, many of his comparisons were false, as when he likened the buds of plants to the uterus and ovary of animals.

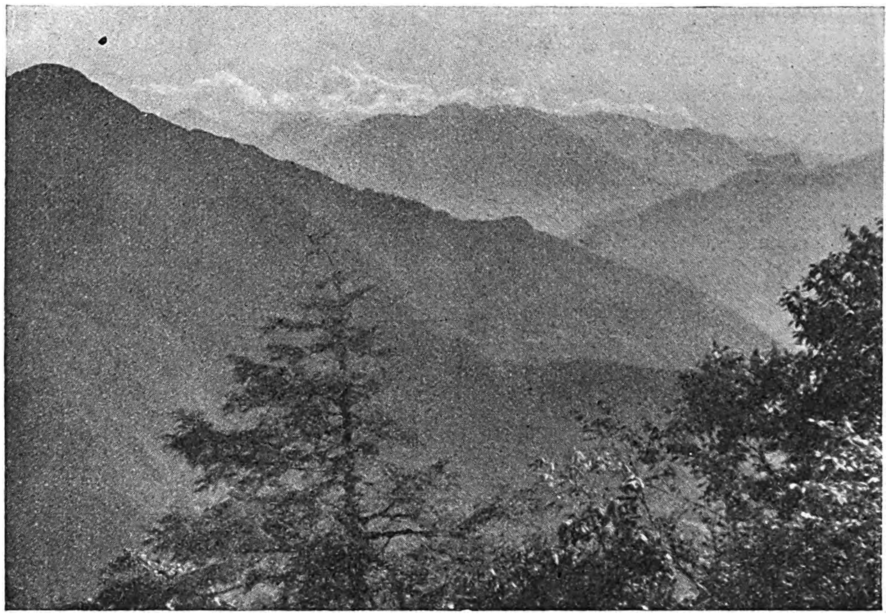

FIG. 121.—VIEW OF THE HILLS FROM LOOK-OUT AT CAMP VI.

When, at last, the stomata were discovered it took a long time to determine their exact use. This is evidenced in the first place by the names which were given to them. They were frequently described as glands, with which they seem to have been confused. Such terms as cortical glands, miliary glands (suggestive of Millet seeds), and epidermal glands, occur in the botanical literature of the eighteenth century, the latter term, in its German form of *Hautdrüsen* being used so recently as 1839 by Meyen. Yet much progress had been made meanwhile in the study of respiration and transpiration. I may mention, by way of illustration, the work of Professor Théodore de Saussure (1767-1845), who combined with his knowledge of geology and botany a practical familiarity with chemistry. Adopting the quantitative method of chemical research which had been established by Lavoisier (1743-94) he was able to experiment in a way unknown to earlier investigators. By enclosing plants in vessels which contained a known quantity of air, and observing their growth under different conditions, he was able to test the changes in the composition of the air thus brought about. In this way he "established the quantitative relation between the amount of carbon dioxide absorbed by the plant in light, and the quantity of oxygen simultaneously given off by it. In the same way he found out the quantity of oxygen absorbed by a plant at night, and also the quantity of water consumed in association with the absorption of carbonic acid that is required for the growth of the plant." Yet it was de Saussure who called stomata cortical glands rather than breathing pores, and de Candolle who called them cortical pores. Indeed, it was not until 1819 that the term stoma (Greek *Στόμα*, a mouth), plural stomata, was introduced by Link, who wrote stomatia for the plural. By German botanists they are termed *Spaltoffnungen*, or *Spaltmündungen*—the syllable *spalt* being the equivalent of the English word split. This gives us no clue to the ends which the stomata serve, and shows that when the term was introduced doubt still existed on the subject.

Stomata are natural apertures, opening outwards through the epidermis or cuticle, and are in general formed of a pair of crescentic cells which unite at their extremities. Thus they produce a more or less longitudinal slit, spalt or opening, closely resembling a mouth with its two lips. We state, however, that this is the general form, for there are exceptions. Thus, we find in certain plants three or four cells or even more. In such a case as the Ash-leaved Anemia from Brazil they undergo curious modifications, while microscopists have long been aware that in the Liverwort (Marchantia) the stomata are built up of a tier of rings, each of which is composed of four or five cells The stomata open into the tissues of the leaf or such other part of the plant upon which they are found, and are sometimes associated directly with an open space which may be regarded as an air chamber. In some instances there is a double chamber. In this way they facilitate respiration or transpiration.

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[*] Previous studies appeared in our issues of April 13 (p. 279), June 15 (p. 446). Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71); August 17 (p. 130) September 7 (p. 188), and September 14 (p. 207).

Since they vary widely in number, position, distribution and even in function, I may enumerate a few of the points of special interest and importance. And first as to the situations where they may be looked for; since they are not absolutely confined to the leaves. We do not usually meet with stomata on the roots of plants on the one hand, or on the petals of flowers on the other. They are rare on fleshy fruits, on seeds, petioles, stems and submerged leaves, but exceptions may be found, and where they occur they are always instructive, as exceptions invariably are in nature. Thus, they may be found on the epidermis of Gourd, and on the Holly berry. They occur also on bracts, sepals, and herbaceous stems.

In examining leaves for stomata, one finds that they vary widely. In many plants they are distributed over the lower surface only, but while in some plants such as the Olive, Pear and Syringa this is the rule, in other cases they are limited to the upper surface, or occur equally on the two sides of the leaf. In general, the leaves of plants which are submerged are destitute of stomata, but in cases where the leaves of aquatic plants float on the surface of the water the rule is for the breathing pores to be on the upper side. Technical writers are constantly enlarging our vocabulary, and so it is that to-day they speak of leaves as hypostomatous (with stomata on the under surface), amphistomatous, and the like. Such details, however, are for text-books rather than for the practical gardener.

Recent investigators on the continent, during their researches into the problems connected with drought, have greatly extended our knowledge of what may be called sunken stomata with canals of considerable length leading to the air chambers. This is a point of considerable interest to plant growers in dry regions, as it throws light on the question of how plants are able to function under drought conditions. Such stomata have long been known to occur in such plants as the Oleander, Banksia, and Dryandra.

We may next take the question of numbers. How many stomata may we expect to find in a given space? The answer is that here, again, the utmost variation is to be found. Nature is fertile in her devices. Where many stomata are needed to enable the plant to function rapidly many will be found; few will occur where only few are needed. Here is what Brown stated in his *Manual of Botany*, published in 1874.

"The number of the stomata on the leaves of different plants varies greatly, from only a few up to 160,000 on a square inch; or 708,750 on an entire leaf of the Lilac, and 1,053,000 on an entire leaf of the Lime tree" (p. 55-6). He is giving a summary of the results arrived at by Lindley and other English botanists, as confirmed by Morren, Unger, Duchartre and other equally trustworthy continental biologists. We may compare this with the statement made in one of the most recent publications.*

"The number of stomata per unit area of leaf surface is [often] very great, usually between 50 and 300 per square millimetre, but in exceptional cases they may even exceed 1,000. Thus Yapp (1912) found on the lower surface of the upper leaves of the Meadow Sweet (Spiraea Ulmaria) up to nearly 1,300 per square millimetre."

At this point it may be well to give a brief summary of conclusions already reached in reference to their distribution and arrangement. Thus we find, in general, that the arrangement and form of the epidermal cells affects that of the stomata. In the case of the Conifers with needle-like leaves, for example, the stomata are arranged in rows or lines; when the cells of the epidermis are distributed equally the stomata will be orderly, and when they are scattered the stomata will be irregularly disposed. Fleshy leaves, on the whole, have fewer stomata, while among trees and shrubs the leathery leaves have the greatest number. Usually—and this is a point of great importance—plants which are normally exposed to the sun have fewer than those found in damp and shady situations. As a rule, herbaceous plants have fewer than those which are woody, and while some have stomata equally distributed on both surfaces of the leaf, some have them chiefly on the under surface, others chiefly on the upper side. The latter is normally the case with aquatic plants whose leaves float on the surface of the water. *Hilderic Friend.*

(*To be continued.*)

MESEMBRYANTHEMUM.

(*Continued from p.* 228.)

MITROPHYLLUM, Schwant.

4.—M. proximum, Schwant. in *Zeitschr. f. Sukkulent*, 1926, p. 182.—A shrublet 8–12 inches high (Fig. 122), with branches 2–3 lines thick, terete, slightly thickened at the nodes and with internodes ¼–1 inch long, glabrous, dark violaceous-grey. Vegetative and flowering growths intermingled on the branches, and the main or terminal cones clustered among the lateral cones at the ends of the branches and sub-sessile, or supported upon an internode 2–6 lines long. Cones 1¼–3 (rarely 4) inches long, 5–9 lines thick at the base; free leaves ¾–3 inches long, 4–7 lines broad at the base, thence tapering to an acute or sub-acute apex, concave, flat or slightly convex on the face, obtusely keeled on the back, light green, minutely papulose as in the other species. Flowers and fruit unknown.

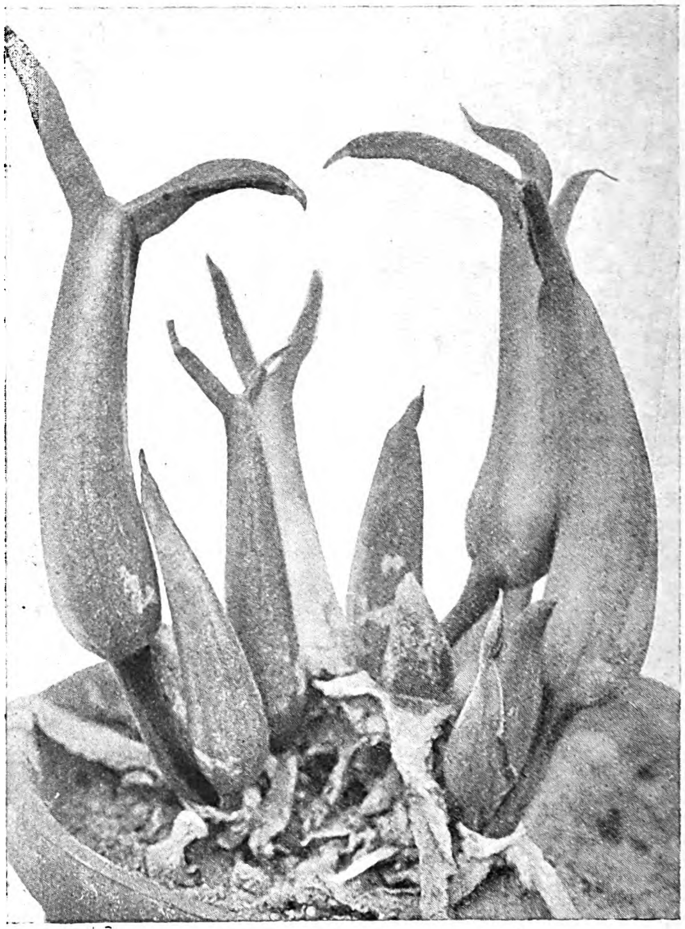

FIG. 122.—MITROPHYLLUM PROXIMUM, SCHWANT.

Cluster of growths eighteen months after rooting.

Mesembryanthemum proximum, N. E. Br. in *Journ. Linn. Soc.* Vol. XLV, p. 117, t. 5, Figs. 3 and 4; *Gard. Chron.*, 1921, Vol. LXX, p. 223, Fig. 95. Conophyllum proximum, *Schwant.* in *Zeitschr. f. Sukkulent* 1928, p. 322.

Little Namaqualand: Without precise locality; Pearson.

Fig. 117 represents a branch of the type plant when first imported. Fig. 122 represents a similar cluster of growths eighteen months after the branch bearing them had rooted, both figures of natural size, which clearly show how very different it is from M. grande, which has been mistaken for it in S. Africa.

5.—M. dissitum, Schwant. in *Zeitschr. f. Sukkulent*, 1926, p. 182 (Fig. 123).—A shrublet 12–18 inches high, with vegetative and flowering growths on the same branches, which are permanent. Branches 1½–2 lines thick, or thicker under cultivation, with internodes 1–2½ inches long, and a distinct and long internode always separating the main cones from the free pairs of leaves from which they arise, glabrous, reddish-brown, becoming dark grey with age. When at rest the vegetative cones are 1–2 inches long, 3½–5 lines thick; the free leaves are ¾–2 inches long, 4–6 lines broad at the base, thence tapering to an acute apex, flat or slightly concave above, obtusely keeled or rounded on the back; both pairs of leaves are glabrous and in their earliest stages minutely crystalline-papulose, with longer and acuter papulae along the edges at the tips, which at length disappear, green, or with reddish tips. Flowers solitary, terminal, becoming lateral in fruit. Pedicels about 6 lines long, papulose. Calyx-lobes 5–8 lines long. Corolla 1¼–1½ inch in diameter, expanding in the middle of the day; petals numerous in 3–4 series, linear, sub-acute, light yellow. Stamens about 2½–3 lines long, at first collected into a cylindric column; white, with pale yellow anthers. Stigmas 5, about 3 lines long, slenderly subulate. Ovary raised and 5-ridged on the top. Capsule when expanded about 10–11 lines in diameter, with 5 valves and cells; expanding keels flat, diverging nearly or quite from the base, with the inner edges toothed and with rather narrow marginal wings; cells somewhat acutely roofed with membranous cell-wings. L. Bol. in *Fl. Pl. of S. Afr.*, Vol. VII, t. 272.

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* N. A. Maximov: *The Plant in Relation to Water*; edited by R. H. Yapp; Allen and Unwin, 1929, p. 172.

Mesembryanthemum dissitum, N. E. Br., in *Journ. Linn. Soc. Bot.*, Vol. XLV, p. 114, t. 5, Fig. 9, and t. 6, Fig. 11. Conophyllum dissitum, Schwant. in *Zeitschr. f. Sukkulent*, 1928, p. 32.

Little Namaqualand: Among bushes on the upper slopes of hills above Daunabis; Pearson, 6,116.

This very distinct species is easily recognised by its long internodes. Fig. 123 represents a rooted cutting in its resting stage, from which it will be noted that the central cone is formed at the end of a long internode.

6.—M. cognatum, Schwant., in *Zeitschr. f. Sukkulent*, 1926, p. 182.—A much-branched shrublet about a foot high (Fig. 124). Main stem 5–7 lines thick, branches 3–4½ lines thick, with internodes ¼–1 inch long, and more or less thickened at the nodes, glabrous, brown under cultivation, pale grey when imported. United pairs of leaves forming cylindric bodies 7–15 lines long, similar to and continuous with the stem or very slightly thicker than the latter at their base, ending in a pair of widely spreading or recurving leafy tips, 1–2¼ inches long, about 2 lines broad at the base, thence gradually tapering to a sub-obtuse apex, channelled down the face, obtusely keeled down the back; the free leaves ½–1½ inch long, 3–4 lines broad at the base, thence tapering to a sub-obtuse point, flat or slightly concave on the face, keeled on the back, strongly recurved; all when young minutely papulose, with those on the margins and keel acute and tooth-like, which dry up and disappear with age; grass-green. Flowers and fruits unknown.

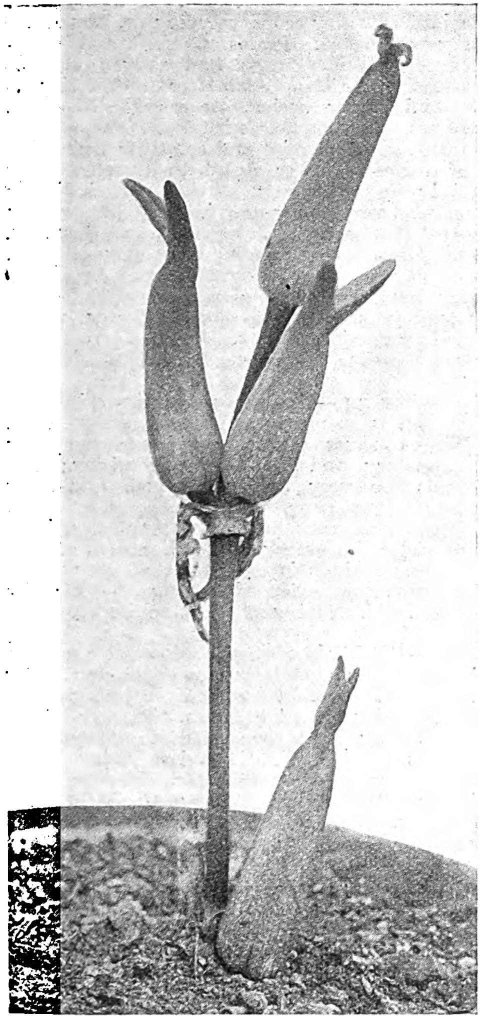

FIG. 123.—MITROPHYLLUM DISSITUM, SCHWANT.

Mesembryanthemum cognatum, N. E. Br. in *Journ. Linn. Soc. Bot.*, Vol. XLV, p. 113, t. 7, Figs. 21–22. Conophyllum cognatum, Schwant., in *Zeitsch. f. Sukkulent*, 1928, p. 32.

Little Namaqualand: Upper slopes of hills south-west of Chubiessis; Pearson, 6,179.

The figure represents a rooted branch of the type in a state of rest.

7.—M. clivorum, Schwant., in *Zeitschr. f. Sukkulent*, 1926, p. 182.—A shrublet 10–12 inches high. Stems and branches 3–7 lines thick, with internodes 5–13 lines long, and constricted at the nodes, glabrous, at first green or reddish-brown, becoming pale grey with age. United pairs of leaves forming cylindric bodies 6–14 lines long, similar to and continuous with the stems, ending in a pair of horizontally spreading or recurving leafy tips 1–2 inches long and 2–3 lines broad at the base; the free leaves ¾–2 inches long, 3–5 lines broad and 3–4 lines thick at the base, thence tapering to a sub-obtuse point, slightly concave above, obtusely keeled beneath; all when young covered with minute, glittering, watery papulae, those on the keel and edges larger than the rest and obtuse (not pointed), of a rather dark, dull green. Flowers unknown.

Mesembryanthemum clivorum, N. E. Br. in *Journ. Linn. Soc.*, Vol. XLV., p. 113, t. 5, Figs. 5–8. Conophyllum clivorum, Schwant., in *Zeitschr. f. Sukk.*, 1928, p. 322.

Little Namaqualand: Mountain slopes between Stinkfontein Plateau and Chubiessis; Pearson, 6,200.

This species is somewhat like M. cognatum, but more lax in habit, and with a constriction at each node, that is quite wanting in M. cognatum. *N. E. Brown.*

(*To be continued.*)

THE GENUS PRIMULA.

(*Continued from p.* 231.)

RETICULATA (Wall). Reticulated P.
(Sikkimensis).

A DECIDUOUS, perennial species of loose, tufted habit with mealy resting buds. The leaves, few in number, have oblong blades two to three inches across, heart-shaped at the base, borne on slender stalks from four to six inches long; margins undulate, furnished with sharp, saw-like teeth; upper surface grey-green, usually smooth and reticulate, at times slightly hairy, underside sometimes mealy. Flower stem twelve to sixteen inches tall, very slender, usually smooth throughout, at times mealy upwards, bearing a loose umbel of nodding, slightly fragrant, yellow blossoms. Corolla about one inch long, with small, oval, erect, undulate, scarcely notched lobes; tube cylindrical below, dilated upwards, twice as long as the calyx. Introduced in 1887.

Grows in damp alpine pastures in the central and eastern Himalayas, from Nepal to Sikkim, at 12,000 to 15,000 feet above sea-level.

Culture: Good, fibrous loam and peat, in an open position, abundantly supplied with water when in growth, should suit it.

RHODANTHA (Balf. f.). Carmine-flowered P.
(Farinosae).

A pretty perennial sub-species of P. rosea (Royle) with a slender, branching root which produces numerous small rosettes of thick, smooth, shining leaves, about three inches long, with blades varying from narrowly-egg-shaped to elliptic, oblong-elliptic and egg-shaped-lance-shaped, blunt or rounded at the tip; margins somewhat cartilaginous, more or less toothed; both surfaces sprinkled with glandular pits. Flower stem about two-and-a-half inches tall, stout, usually immersed in the foliage which is well developed when the plant is in flower. The rose-coloured blossoms are borne in an erect umbel of one to eight flowers on erect, slender stalks about five-eighths-of-an-inch long. Corolla concave, about five-eighths-of-an-inch across, divided into five egg-shaped lobes cleft to the middle; tube cylindrical below, dilated upwards, about three-eighths-of-an-inch long.

Grows in damp, rocky soil in ravines in the Kurrum Valley, Afghanistan, at 9,000 to 10,000 feet above sea-level, and is apparently very local.

Culture: Plant it in peat and loam, on the edge of the bog garden, in full sun.

RHODOCHROA (W. W. Sm.). Tibetian Pixy P.
(Minutissimae).

A very dainty, dwarf perennial species hardly more than one inch tall, including the flower stem. It forms tufts or rosettes of deep green leaves, which have broadly lance-shaped or narrowly egg-shaped blades, nearly stalkless, or gradually tapering to a broad stalk, in all from a quarter- to three-eighths-of-an-inch long; margins furnished with sharp, irregular teeth; upper surface green and clothed with minute, stiff hairs, underside densely coated with white meal. Flower stem very short, hardly one-eighth-of-an-inch long, mealy, bearing one or two bright rose or deep rose blossoms immersed in the foliage. Corolla about five-eighths-of-an-inch across, with broadly heart-shaped, notched lobes; tube cylindrical, about a quarter-of-an-inch long, with a ring in the mouth. Flowers in June and July.

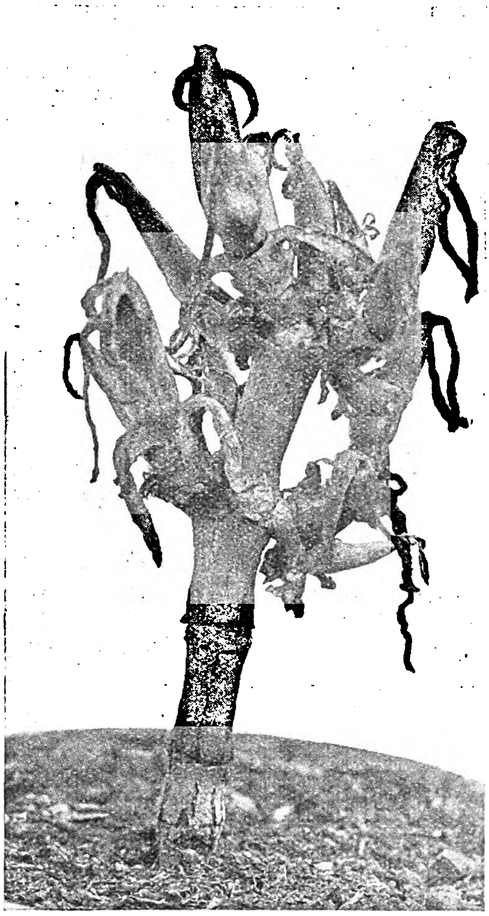

FIG. 124.—MITROPHYLLUM COGNATUM, SCHWANT.

Grows on mossy and grassy ledges of cliffs and on stony slopes among dwarf bushes, in south-eastern Tibet, at 12,000 to 15,000 feet above sea-level.

Culture: Peat and fibrous loam, in a cool, damp spot, with protection from damp in winter, are the conditions suggested.

RIGIDA (Balf. f.). Rigid P.
(Nivales).

The rootstock of this dwarf perennial species is covered with the bases of previous seasons' tufts of foliage. The slightly fleshy leaves have narrowly lance-shaped blades about three-quarters-of-an-inch long, gradually tapering to short stalks; margins slightly involute and furnished with blunt, regular teeth; upper surface more or less smooth, underside mealy. Flower stem usually solitary, bearing an umbel of two to six nodding, purplish-rose or mauve, fragrant blossoms with a white eye. Corolla flat, about half-an-inch across, with spreading, egg-shaped lobes; tube about half-an-inch long. Flowers in June and July.

Grows on open alpine ridges in short turf, near Tumbatse, in south-eastern Tibet, at 15,000 to 16,000 feet above sea-level; also on the mountains around Muli, in south-western Szechuan, at 10,000 to 12,000 feet.

Culture: Grow it in good fibrous loam and peat, in a well-drained, open spot, with protection from damp in winter.

RIPARIA (Balf. f.). River-bank P. (Malvacea).

This plant is probably a sub-species of P. neurocalyx; it produces a sparsely-leaved tuft of foliage covered with rather long, white hairs. The leaf blades vary in shape from heart-shaped or broadly oval to sub-rotund, they are from three-quarters- to one-and-a-quarter-inch long, and are borne on hairy stalks about equalling the blade in length; margins cut into numerous lobes which are furnished with sharp teeth. Flower stem about four inches tall, more or less covered with glandular hairs; the blossoms, which are lilac with a yellow tube, number about five, and are borne in an erect umbel. Corolla flat, about five-eighths-of-an-inch across, divided into five broadly heart-shaped, bifid, deeply divided lobes; tube cylindrical, slightly longer than the calyx, with a large-lobed ring in the mouth. Flowers in April and May. Not in cultivation.

Grows in damp, cool, shady places near Chago, in Kansu, at about 7,000 feet above sea-level.

Culture: Leaf-soil and loam in a cool, shady spot well-drained in winter, should suit this species, which will probably prove quite hardy in cultivation in this country.

ROSEA (Royle). Rose P. (Farinosae).

This beautiful and well-known species is a smooth, deciduous, densely-tufted perennial with bronze-coloured resting buds. The leaves, which are from four to six inches long, have egg-shaped-oblong, oval-oblong, or broadly lance-shaped blades, rounded at the tip, stalkless, or with a short, rather obscure stalk; margins furnished with sharp teeth. Flower stems stout, from six to eight inches tall, bearing an umbel of three to six rose-red blossoms. Corolla flat, three-quarters-of-an-inch to one inch across, with usually broadly heart-shaped, deeply-notched, sometimes toothed lobes; tube longer than the calyx. Flowers from May to August.

Grows in boggy alpine pastures in Afghanistan and the western Himalayas, from Kulu to Kashmir, up to 12,000 feet above sea-level. Introduced in 1879.

Culture: Plant it in peat, gritty loam and leaf-soil, and treat as a bog plant.

Var. elegans (Hook. f.) has a smaller corolla, a larger tube and narrower lobes. It is found in Afghanistan and Kashmir. In cultivation. *Bot. Mag.*, t. 6,437, in mistake for the type.

ROSIFLORA (Balf. f.). Rose-flowered P. (Farinosae).

An apparently pretty perennial plant closely allied to P. rosea, with a rosette of smooth, non-mealy leaves from three-quarters- to one-and-a-half inch long, with somewhat thick, elliptic or oblong, blunt blades half- to three-quarters-of-an-inch long, tapering to short, winged stalks; margins obscurely and remotely toothed; both surfaces dotted with numerous glands. Flower stem very short, not more than one-eighth-of-an-inch long, immersed in the foliage, and bearing an umbel of about four rose-coloured blossoms. Corolla about one inch across, very deeply divided into bifid lobes; tube narrowly cylindrical, about three-quarters-of-an-inch long, with a ten-lobed ring in the mouth. Flowers in June. Not in cultivation.

Grows in damp situations in Chitral, in north-western India, at 5,000 to 10,000 feet above sea-level.

Culture: As for P. rosea.

ROSTHORNII (Diels). Rosthon's P. (Malvacea).

This deciduous perennial is a sub-species of P. malvacea (Fr.); it produces a sparse tuft of membranous leaves with rounded, blunt blades one to three inches across, heart-shaped at the base, borne on distinct, rounded stalks two to six inches long, clothed with rather long, brownish hairs; margins sinuate and cut into small, rounded, slightly toothed lobes; both surfaces hairy, underside with long, brownish hairs on the veins. Flower stem two to ten inches tall, slender, hairy, bearing one or two superposed umbels of three to seven rose or rose-purple blossoms with a yellow eye, or mauve with a white eye, borne on stalks half-an-inch to one inch long. Corolla deeply saucer-shaped, about five-eighths-of-an-inch across, with rounded, notched lobes; tube cylindrical, longer than the calyx. Flowers in June and July.

Grows in dry soil in stony, open pastures, on ledges of limestone cliffs and occasionally in woods in Yunnan and Szechuan, at 9,000 to 11,000 feet above sea-level.

Culture: As for P. malvacea.

ROTUNDIFOLIA (Wall). Round-leaved P. (Rotundifolia).

A handsome, deciduous perennial species with stout resting buds covered with yellow meal. The tufts of membranous leaves have almost circular blades from one inch to four inches across, heart-shaped at the base, borne on stalks six to twelve inches long; margins toothed and at times almost lobed; usually more or less smooth above, coated with sulphur meal below. Flower stem six to fifteen inches tall, rather stout, covered with yellow meal and bearing several superposed umbels of purple blossoms on slender, mealy stalks half- to three-quarters-of-an-inch long. Corolla flat, half- to three-quarters-of-an-inch across, with egg-shaped, scarcely notched lobes; tube twice as long as the calyx, with a ring in the throat. Flowers in June and July. Introduced in 1833. *Bot. Mag.*, t. 3,167.

Grows in damp alpine pastures in the eastern Himalayas from Nepal to Sikkim, attaining an elevation of 13,000 feet above sea-level.

Culture: Grow it in a mixture of good fibrous loam and peat in a cool, damp spot, well drained in winter. *A. W. Darnell.*

(To be continued.)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

(Continued from p. 231.)

ENGLAND, S.

KENT.—Hardy fruits have, this season, in spite of a very dry spring and summer, surpassed expectations, with the exception of Strawberries, which were a complete failure. Some varieties of Apples required thinning, while others are thinly cropped, with the result that the crop is about average. Apricots are the best crop for years. Very little summer spraying has been necessary. Plums are grown on walls here, but the crop on bush trees in this district is good. *H. Brotherston, Lympne Castle Gardens, Hythe.*

—— Apples, Pears and Cherries in this district are an average crop and good. Apples are very free from scab, even Allington Pippin and Bismarck, which are very subject to scab, could not be better than they are this year, with a good crop on standard and bush trees. We spray in spring with Cooper's winter spray. Other Apples that are cropping well are Lane's Prince Albert, Newton Wonder, and Bramley's Seedling, while most other varieties are carrying a fair crop. Pears had plenty of blossom but a lot of the fruits have dropped. The cause of this was the dry weather during May and June. Conference is holding its own, with a good crop, as a market variety; others of note that are good are Pitmaston Duchess and Doyenné du Comice. Strawberries were almost a failure owing to the severe winter and the dry May and June. Many of the plants are dead, and fruits on other plants were small. Plums are under average, the only sorts of note being Belle de Louvain and the Bush Plum; early and very late varieties are poor. Damsons are a good crop. Gooseberries, Currants and Raspberries were all very good. Peaches were good, also Figs. The soil here is a heavy loam over chalk. *J. Bone, Olantigh Gardens, Wye.*

—— All fruit trees and bushes showed splendid promise of heavy crops, carrying an abundance of good flowers. Plums, Cherries and Strawberries and bush fruits had very favourable weather conditions. At a later date, during the Apple-flowering period, we registered several degrees of frost on successive days. Strawberries showed good promise and set their fruits well, but a great number failed to develop owing chiefly to the drought at that period. Plums carried a very heavy crop in 1928, but are very scarce this season. Raspberries and Black and Red Currants bore an abundance of good friuts. Gooseberries were a small crop. Apples are very disappointing after such an abundance of good flowers. The soil here is heavy, with a good proportion of clay. *H. E. Kemp, Holmewood Gardens, Langton, Tunbridge Wells.*

MIDDLESEX.—The crops of fruits this season are somewhat patchy. Peaches are good and Cherries an average crop. Strawberries were very satisfactory, and Raspberries promising; bush Plums are very lightly cropped, and Black Currants were poor. Cooking Apples set a good crop on some trees, but dessert Apples and Pears are under the average. The lightness of crops of several kinds is due to the very severe late frosts experienced during the flowering season. *H. Markham, Wrotham Park Gardens.*

—— All kinds of fruits bloomed profusely, in most cases much later than usual, but during the flowering period the weather was generally cold and dry with night frosts. Pears and Plums are a very light crop. Certain varieties of Apples set well, the heaviest being James Grieve, which seldom fails; Lane's Prince Albert, Peasgood's Nonsuch, Beauty of Bath, Lady Sudeley, Charles Ross and an occasional tree of Cox's Orange Pippin. Apples last year were badly infested with American blight; it is again in evidence on some trees, but the attack is not so severe as the trees were well sprayed in late winter with Karbo Killegg; apart from this, the trees seem cleaner than usual. The soil here varies from light gravelly to medium loam. *George H. Head, Fulwell Park Gardens, Twickenham.*

SURREY.—Apples are a good crop in this district, although some trees are rather thinly fruited; Pears and Plums are almost total failures. Small fruits were plentiful, with the exception of Strawberries, which have been allowed to run out, but I am hoping to have a crop next year from fresh stock. The total rainfall up to July 12 was only 4·67 inches. *Grigor Roy, Bevenden Gardens, Oxshott.*

—— The fruit crops around this neighbourhood are much under the average, especially in regard to Apples. There was plenty of blossom, but it was small and weak and never opened properly. The trees are clean and have made good growth, so that, given a sunny autumn, there may be good crops of fruits next year. Peaches and Nectarines have never been better or the trees cleaner. Pears, Raspberries, Currants and Strawberries are our best crops. Apples, Plums and Gooseberries are failures. *F. Jordan, Ford Manor Gardens, Lingfield.*

——The fruit crops in general in this neighbourhood looked remarkably well and promising up to April 20; after this date we were overtaken by one of our cold waves, which lowered the temperature below freezing point on seven consecutive nights, followed by four milder days, then frost again on May 1. This, of course, caused a sad set-back to all hopes of a great fruit crop, especially of Apples. Whole bunches of flowers fell, before even showing colour, from the trees of some of the best varieties, *i.e.*, Bramley's Seedling, Annie Elizabeth, Newton Wonder, Belle de Boskoop, Beauty of Kent, Dumelow's Seedling, Rev. W. Wilks, Warner's King and many others; Blenheim Pippin, Cox's Orange Pippin, Allington Pippin, Charles Ross, James Grieve, Gravenstein and Ribston Pippin were less damaged. *G. Carpenter, West Hall Gardens, Byfleet.*

(*To be continued.*)

HOME CORRESPONDENCE.

Astilbe simplicifolia.—I was particularly interested in the beautiful Supplement Plate illustrating this plant, which appeared in *The Gardeners' Chronicle* for August 24. This delightful Astilbe first appeared in my nurseries at Brantwood, Southport, as a chance seedling, and I gave it a royal welcome owing to its pleasing appearance. In the second year after its appearance it began to flower, and at once I thought it must be a Spiraea or some near relative. I am still under the impression that it first made its appearance under the name of Spiraea. If I mistake not, I had a visit at that particular time from Mr. Clarence Elliott, to whom I sold the plant, for what I considered at the time to be a fabulous price—a guinea! The following year I received a consignment of plants from the Yokohama Nursery Company and to my great joy and to my surprise found enclosed a few seedling plants of what was then known as Spiraea simplicifolia. I must have sent some of the plants to Mr. Irving, at Kew, and I believe he was able to raise a few seedlings of this most dainty little stranger. I think it was in the following year that I succeeded in importing a number of plants of it. This would be about the year 1910, at which time I was also able to offer another charming little plant, Jankaea radicans, which is but seldom seen in collections. *W. H. Stansfield, Southport.*

Hardiness of Gladiolus species.—It was rather surprising to read of Mr. Arnott's experience with Gladiolus byzantinus (recorded on p. 204), more especially as I have seen it flourishing in a light, sandy soil so far north as Aberdeen, where it withstands the winter well. I made two plantings of this species here in London. The first batch was placed in the ground at Christmas, 1928, and the second in April, 1929, about the third week in the month. At the time of the severe frosts in February and March, 1929, the first batch had made no growth, and came through quite safely with only about two inches of soil to cover them. Both batches flowered simultaneously about June 24. In September, 1928, I planted some corms of G. cardinalis in the open ground, and these were about nine inches high at Christmas, 1928, but the frosts, coming later, destroyed the whole batch. A second planting made at Christmas, 1928, came through the winter quite safely. *Robert H. Jeffers.*

The Effects of the Drought.—The symptoms which Mr. H. H. Cook describes (p. 136) as affecting Apples of certain varieties growing in grass are simply those of nitrogen starvation, helped, of course, by the drought. Last year many of my trees in grass looked just as poor as he describes. This year, after a generous spring application of a quick-acting nitrogenous fertiliser, they are carrying dark green leaves and a heavy crop of fruits of normal size, in spite of severe drought. Cox's Orange Pippin, in these conditions, is making a lot of growth, and promises to swell its fruits to more than average size. *Market Grower.*

SOCIETIES.

ROYAL HORTICULTURAL.

September 19 and 20.—The first of the series of four Autumn Shows which, this year, are to take the places of the usual one comprehensive show, was held in the Society's halls, Westminster, on these dates. The innovation is of the nature of an experiment, and until its completion, no one can judge of its success. Besides dividing the conventional Autumn Show into sections there seems to be an attempt at discovering whether there is a preference on the part of the exhibitors and the other Fellows for any particular pairs of days of the week. The present show has been held on a Thursday and a Friday, the next is to be on a Wednesday and Thursday, while the third will occupy the time-honoured Tuesday and Wednesday. There was no dearth of exhibits last week, for both halls were filled, and the Orchid annexe and Tea annexe were requisitioned, but it seemed to us that the attendance was not quite equal to that of last year's Autumn Show. The show was "chiefly for open-air plants and Roses," so there were seasonable hardy border flowers in abundance, a goodly number of small rock gardens and Water Lily pools surrounded by bog plants, gorgeous displays of Dahlias, masses of delightful, fragrant Roses and, no doubt admitted by the qualifying "chiefly," magnificent pot-grown, tuberous-rooted Begonias. The Committees met as usual. The Orchid Committee recommended one First Class Certificate and four Awards of Merit to novelties, and the Fruit and Vegetable Committee found a new dessert Apple to be of outstanding merit. In view of the floral importance of the show, the novelties before the Floral Committee were disappointing, for there were only three which could be considered worthy of award, while several others were selected for trial at Wisley. The Joint Dahlia Committee again selected a number of novelties for trial.

Orchid Committee.

Present: Mr. Frederick J. Hanbury (in the chair), Mr. Gurney Wilson (Hon. Secretary), Prince Shimadzu, Mr. R. G. Thwaites, Mr. T. Armstrong, Mr. J. C. Cowan, Mr. Fred. K. Sander, Mr. J. E. Shill, Mr. A. Dye, Mr. Charles H. Curtis and Mr. H. G. Alexander.

First Class Certificate.

Potinara Dorothy, Dell Park var. (*Sophro-Laelio-Cattleya Prince Hirohito × Brasso-Laelio-Cattleya maculata*).—A gorgeous and glorious Orchid of oriental splendour. The flower shown was of large Cattleya size, with broad petals and fairly wide sepals. The colour in all these segments is rich yellow with a tinting of orange-yellow towards the margin in the case of the petals, and towards the tips of the sepals. The wide and frilled lip is of brilliant reddish-carmine, with exquisite gold veining over the orange-tinted central area and throat. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

Awards of Merit.

Laelio-Cattleya Profusion, Stonehurst variety (*L.-C. Serbia × C. Hardyana*).—There is a profusion of Profusions, and although the Stonehurst variety has been surpassed in form by varieties previously certificated, it is of fine colour. The sepals and petals are rich deep purplish-mauve, while the bold, frilled lip is bright, deep royal-purple with a gold-veined throat. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly.

Laelio-Cattleya Ishtar var. magnifica (*L.-C. Sargon × C. Fabia*).—A handsome form of fine substance, with purplish-mauve sepals and petals, and a crimson-shaded, gold-veined, purple lip. Shown by Robert Paterson, Esq.

Cattleya Mimosa var. Primrose Queen (*C. Venus × C. Triumphans*).—A pretty variety in which the sepals and petals are light yellow, with primrose shading down the centre of the latter and at the bases of the former. The lip is dull purple, shaded with crimson. Shown by Messrs. Cowan and Co.

Gongora maculata.—A very charming form of this old Orchid. The long, red-stemmed, pendant spike carried thirty-three elegant little flowers which are yellow, heavily dotted with dark brown. The pedicels of the flowers are red. This appears to be a variable South American species as shown by the figures in *Bot. Mag.*, t. 3,687 and t. 7,530. Shown by Messrs. Charlesworth and Co.

There were no groups on this occasion, but Messrs. Armstrong and Brown showed Cattleya Gisie var. Golden Queen (C. Dionysius × C. Dowiana var. aurea); this was not well-named, however, as the sepals and petals were pale cream, tinted with greenish-yellow. Laelio-Cattleya Senator, Brownland's var., with four flowers, was shown by S. Brown, Esq. (gr. Mr. Thurgood), Brownlands, Shepperton.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. A. Turner, Mr. C. F. Langdon, Mrs. Wightman, Mr. B. R. Long, Mr. M. C. Allwood, Mr. D. Allan, Mr. J. B. Riding, Mr. J. T. West, Mr. R. Findlay, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. G. W. Leak, Mr. H. R. Darlington, Mr. Courtney Page, and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. C. T. Musgrave (in the chair), Mr. G. Reuthe, Mr. W. G. Baker, Mr. G. Harrow, Mr. Amos Perry, Mr. T. W. Taylor, Mr. F. G. Preston, Mr. R. C. Notcutt, Mr. R. W. Wallace, Sir William Lawrence, Bt., Mr. George Yeld, Mr. W. J. Bean, Mr. G. W. E. Loder, Hon. H. D. McLaren, Mr. E. A. Bowles and Mr. N. K. Gould, Secretary.

Awards of Merit.

Lapeyrousia grandiflora.—This showy little bulbous plant was discovered by Sir John Kirk in Zambesia in 1858, and figured in *Bot. Mag.*, t. 6,929. It is a cool greenhouse plant. The bright reddish-terra-cotta flowers have velvety-crimson markings on the three, shorter lower segments and, at times, on one or two of the upper segments (See Fig. 116, p. 239). Shown by Mr. Amos Perry.

Lilium philippinense var. formosum, Price's variety.—A graceful Lily which has small leaves and relatively large trumpet-shaped, fragrant flowers of milky-white colour stained with red along the outsides of the segments. This plant received the award on September 10 last. Shown by E. M. Preston, Esq. (gr. Mr. C. F. Wood), The Warren, Hayes, Kent.

Chrysanthemum Mrs. W. D. Cartwright.—An incurving Japanese variety of good market size and bright yellow colour.

Chrysanthemum Kingcup.—A small Japanese variety of rich yellow colour. Both varieties were shown by Mr. H. Shoesmith, junr.

For Trial at Wisley.

Aster Gayborder Blue.—A semi-double, blue Novi-belgii variety. Although decorative in the border, the flowers curl up when cut. Shown by the Gayborder Nurseries.

Aster Bessie Chaplin.—A large-flowered, erect, Amellus variety of medium blue colour. Shown by Mr. T. Bones.

Aster Pink Pearl.—A large, semi-double, pale pink Novi-belgii of considerable beauty. Shown by Mr. E. Ballard.

Aster Mrs. Gladys Forbes.—A large, single, pale mauve Amellus variety. Shown by Mr. T. Bones.

Joint Dahlia Committee.

Present: Mr. H. B. May (in the chair), Mr. J. F. McLeod, Mr. J. Cheal, Mr. A. Turner, Mr. R. Fife, Mr. J. T. West, Mr. J. B. Riding, Mr. J. Emberson, Mr. W. H. Johns, Mr. A. Vasey and Mr. D. Campbell.

New Dahlias.

The Joint Dahlia Committee selected the following varieties for trial at Wisley.

Rebel.—A large Cactus variety of rose-maroon colour. This, and the following variety, were shown by Messrs. J. Stredwick and Son.

W. F. Balding.—A large Decorative variety of pale amber colour suffused with apricot.

Margate Star.—A shapely yellow Star variety heavily flushed with rosy-purple except at the base of the ray florets. This and the following three varieties were shown by Messrs. J. Cheal and Sons.

Hadley. — An uncommon, small Paeony-flowered variety. The pointed florets are of Indian-red colour, flushed with red-maroon.

Mysore.—A small Paeony-flowered variety of light rosy-mauve colour.

Nagpur.—A bright scarlet, small Decorative variety.

Eda.—A very pretty, small Paeony-flowered variety of orange shading.

Pauline—An orange-terra-cotta, small Paeony-flowered variety. This, and the above, was shown by Messrs. Burrell.

Dahlias.

Dahlias contributed largely to the bright display in the new hall, where the walls were lined with magnificent groups of these popular seasonable flowers.

In his grand collection of large-flowered sorts, Mr. J. B. Riding showed Queen of the Garden Beautiful, Lady Stonehaven, W. D. Cartwright, Lotus, Amulet, Grace Curling, Jane Cowl, Titan, Berengaria, Golden Sun, Neptune, Adler and Carnival in perfect condition, while special features in the lovely group from the King's Acre Nurseries were Golden Sun, W. D. Cartwright, Talisman, Trentonian, R. E. Ludwig, Berengaria and Andreas Hofer, together with several choice Collerette, Pompon and other types.

Messrs. H. J. Jones had a charmingly arranged group in which were lovely sheaves of Tommy Atkins, Hera, Mr. T. Hay, V.M.H., Jersey Beauty, Polar Bear and W. D. Cartwright, while other good sorts were Canberra, Doris Trayler, J. L. Crowther, Mabel Lawrence, Andreas Hofer, Golden Sun, Talisman and Homeric; choice Pompon varieties included Johnnie, Glow, J. van Oitters and Ideal.

Messrs. Jarman and Co. showed Cactus varieties chiefly, their outstanding sorts being A. E. Amos, Ballet Girl, Margaret, Harry Strutt, Ambassador, Mary Segar, Mary Purrier, Mary Murray and J. Emberson; Mr. S. J. Goodliffe showed many choice Dahlias in association with several good Michaelmas Daisies; Messrs. Carter Page and Co., Ltd., were responsible for a handsome group of many popular sorts, and so also was Mr. J. T. West.

Messrs. Dickson and Robinson had a well-finished and very decorative group of Dahlias, edged with various Pompon sorts, outstanding Dahlias in their group being Espoir, W. D. Cartwright, W. V. Goethe, Yellow Perfection, Réne Cayeux, Rapallo and Cayclerc.

At the far end of the hall an enormous bank of blooms was set up by Messrs. Dobbie and Co., Ltd., who gave special prominence to their so-called Orchid-flowered Dahlias, in various bright colour shades; Dream, Flamingo, Fawn, Redpole and Mavis were notable. These were grouped in the centre of the display and were flanked with attractive sheaves of grand blooms of many other Dahlias, of various types.

Messrs. J. Cheal and Sons, Ltd., laid out an original and quite effective display of Dahlias in the form of a more or less formal garden. There was a central mound of various large-flowered Decorative sorts, and smaller beds of choice Star, Cactus, Paeony-flowered and Collerette varieties, with an edging of Mignon Dahlias in variety.

Messrs. James Stredwick and Son staged many specimen blooms of choice, large-flowered Dahlias; while Mr. H. Clarke and Messrs. G. and A. Clarke, Ltd., also Messrs. W. Wood and Son, Ltd., staged collections of varying size and merit.

Messrs. W. Treseder, Ltd., showed grand blooms of Rapallo, F.T.D., Vesuvius, Mabel Lawrence, Halvella and Jersey Beauty, among others, in a particularly bright group, next to which was another bank of Dahlias set up by Mr. H. Woolman, such large-flowered sorts as Trentonian, Mayflower, Grace Curling, W. D. Cartwright and Joyce Goddard being of exceptional quality.

Michaelmas Daisies.

Owing to the continued dry weather, Michaelmas Daisies were not so much in evidence at this show as might have been expected, and there were few exhibits of note.

Certainly the best, although badly placed, was the tall rectangular pyramid set up by Messrs. W. Wells, junr. It contained floriferous sprays of many bright varieties, notably Empress of Colwall, Barr's Pink, Royal Blue, Countess, October Dawn, Maid of Athens, Owen Wells, and several varieties of the Amellus section.

Mr. H. Hemsley associated perennial Asters with Dahlias and Sidalceas, his best sorts being Mrs. J. Raynor, Royal Blue, Barr's Pink and Percy Ballard; while Mr. F. Rich showed good sprays of King George, Elizabeth Leiman and Herman Lous, of the Amellus section, in association with such popular tall-growing sorts as Ethel Ballard, Empress of Colwall, Grey Lady and Barr's Pink.

Mr. Ernest Ballard, well-known as a raiser of many fine Michaelmas Daisies, had a charming group of these flowers. He had corner pillars of October Dawn and Snowdrift; Royal Blue and Nancy Ballard; Maid of Athens and Empress of Colwall; and Edith Ballard and Mrs. George Monro. In the centre were dainty sprays of Silver Spray, of the ericoides section, and the groundwork of the group consisted of masses of Pink Pearl, Countess, Little Boy Blue, Queen of Colwall, Snow Sprite, Rosette and others. A very charming display.

Mr. T. Bones set up a lovely bank of many good sorts, and besides many Amellus varieties he had lovely vases of Maggie Perry, Ethel Ballard, Maid of Athens, Daphne, Pink Perfection, Viscountess Gladstone and Snowdrift.

Messrs. W. Cutbush and Son, Ltd., staged an extensive group of seasonal herbaceous flowers, chief among which were the Michaelmas Daisies, notably the varieties Surprise, October Dawn, Ethel Ballard and Snowdrift.

The Gayborder Nurseries were also responsible for the setting up of a charming group of perennial Asters, their sprays of Gayborder Blue (new), Barr's Pink and Countess being notable; while among varieties of Aster Amellus their best were King George, Mrs. A. H. Wiggin and Perry's Favourite. In association with Heleniums, Gaillardias and other seasonable flowers, Messrs. G. Jackman and Son showed good Michaelmas Daisies in Kate Bloomfield, Mons, October Dawn, Dick Ballard, Woking White, Royal Blue and Robinson V.C.

The group of herbaceous subjects from the Little Munsden Nursery contained several good perennial Asters, while the chief varieties in the mixed group staged by Mr. R. J. Case were King George, Nancy Ballard and Little Pink Lady. Messrs. W. Keep and Co. arranged charming sprays of Dick Ballard, Rose Queen and King George, the last-named especially good, in association with Heleniums in variety and other herbaceous subjects. In conjunction with Gladioli, Liatris, Gaillardias, etc., Messrs Rich and Cooling, Ltd., showed good sprays of numerous Michaelmas Daisies, including October Dawn, Empress of Colwall, Snowdrift and Peggy Ballard; while the Central Garden Supplies also set up a small group in which these popular flowers predominated. Not the least attractive of the groups staged in the new hall was that tastefully arranged by Messrs. Barr and Sons, who had grand sprays of the Earlham Montbretias, in several varieties, a speciality of this noted firm; lovely inflorescences of Lilium sulphureum and various herbaceous subjects, chief among which were Michaelmas Daisies in grand condition, a few of their varieties being Countess, Barr's Pink, naturally; Grey Lady, Rachel Ballard, October Dawn, Dick Ballard, Little Boy Blue, very fine; and Royal Blue. A very attractively arranged group.

Messrs. G. Bunyard and Co., Ltd., had a charmingly arranged bank of herbaceous subjects, chief among which were Michaelmas Daisies, including such good varieties as Little Boy Blue and Royal Blue, with several representatives of the Amellus and ericoides sections; the Heleniums, Kniphofias, Coreopses and Scabiosa caucasica also proved attractive in this collection.

In a charmingly arranged rectangular group, Mr. Gavin Jones associated such perennial Asters as King George, Ultramarine, Dick Ballard and Barr's Pink, with Heleniums, Sedum spectabile, Gaillardias, Liatris, Achillea filipendulina, Rudbeckia purpurea and Gypsophila paniculata var. Bristol Fairy, to produce a very bright effect.

Roses.

These were greatly in evidence in the old hall, the walls of which were lined with many lovely groups.

First on the left hand side of the entrance was an artistically arranged bank of good blooms by Messrs. Ben. R. Cant and Sons, Ltd., whose baskets of Elsie Poulsen, K. of K., Mrs. Henry Bowles, and Mrs. Beatty were particularly charming. Next to this group was one by Messrs. R. Harkness and Co., who made a special feature of K. of K., and showed good blooms of many popular sorts, especially Marcia Stanhope, Mrs. Charles Lamplough and Madame Butterfly.

Messrs. Chaplin Bros. had grand pillars of Betty Uprichard, Dame Edith Helen, Conqueror, Los Angeles and Windsor in their attractive display, while prominent sorts in the bright and artistically arranged group by Messrs. Alex. Dickson and Son, Ltd. were Shot Silk, Dame Edith Helen, Flamingo and Mabel Morse. The Dowty's Rosery group contained many good blooms of popular sorts, as also did Messrs. Walter Easlea and Sons Ltd's.

Mr. J. C. Allgrove and Messrs. George Bunyard and Co., Ltd., made special features of fruiting sprays of various Rosa species, the former showing R. Fargesii, R. pomifera and R. Moyesii, and the latter R. complicata, R. Spathiana, R. glutinosa, R. villosa and R. rubrifolia. Messrs. A. Reeves and Co. had lovely vases of Coral Queen and Little Dorrit, a charming cerise, dwarf Polyantha variety.

In the bright display arranged by Messrs. D. Prior and Sons, the best of many good sorts were Etoile de Hollande, Rev. F. Page Roberts, Golden Ophelia and Mrs. Beatty; Mr. T. Hancock showed the richly-coloured variety Charming Princess, while outstanding features in Mr. Elisha J. Hicks's group were the pillars of Angele Pernet, Ophelia, Los Angeles, Shot Silk and Etoile de Hollande. Good sorts, among many, in Mr. J. H. Pemberton's nicely arranged group were the single Mermaid, Madame Butterfly, K. of K., and Pax.

Mr. George Prince had a nicely arranged collection of bright, clean blooms, his chief feature being the *Daily Mail* scented Rose, other prominent sorts including Betty Uprichard, Independence, Elizabeth Arden, Los Angeles and W. F. Dreer.

Size and cleanliness of the individual blooms were the notable features in the grand display by Mr. Thomas Robinson, who was awarded the Wigan Challenge Cup. Every bloom was of large size and of perfect shape, the chief sorts being Mabel Morse, Etoile de Hollande, Mrs. A. R. Barraclough, Dame Edith Helen, Mrs. Herbert Stevens and Miss C. E. van Rossem.

The Irish-grown Roses staged by Messrs. S. McGredy and Son were, as usual, richly and brightly coloured, and remarkably clean. The collection embraced a very large number of varieties, among the best being Madame E. Herriott, McGredy's Ivory, Cherry, Emma Wright, Golden Emblem, Margaret McGredy, Mrs. Charles Lamplough, of grand form; Frau Karl Druschki, and Portadown Bedder, other sorts of comparatively recent introduction, and staged separately, being Rose Berkeley, Lady Leslie, Marian Cran and Doris Trayler.

Messrs. Thomas Smith and Son made special features of Covent Garden, Betty

Uprichard, Madame E. Herriot, Margaret Ann Baxter and Lady Inchiquin in a bright group, while besides several good dwarf Polyantha varieties the collection from the Stanway Rose Gardens contained especially good blooms of Mabel Morse, Mrs. Beatty and Angele Pernet. Messrs. Wheatcroft Bros. made a special feature of The Princess Elizabeth, of which they showed many good blooms in association with other popular sorts.

Messrs. Allens set up a bright bank of Roses, while prominent in the extensive collection staged by Messrs. Hewitt were Dame Edith Helen, Mrs. Herbert Stevens, Queen Alexandra and Mrs. Henry Morse. Messrs. A. Warner and Son also staged lovely vases of good blooms in great variety.

CHRYSANTHEMUMS.

Although Chrysanthemums were not numerous, they yet were quite a feature of the show, especially the grand group set up by Mr. J. W. Forsyth, who showed richly-coloured and beautiful blooms of Mrs. Phil Page, Hollicot Yellow, Bronze Early Buttercup, Winnie Cawden, R. C. Callicott, Sunkist, Crimson Circle, Shirley Pride, Mrs. Jack Pearson, Cranfordia and Bronze Betty Spark, to mention but a few of the most prominent.

Numerous decorative Chrysanthemums were staged in a charming group from the King's Acre Nurseries, notable among them being Crimson Circle, Goldfinder, Bronze Early Buttercup, Martin Reed, Mrs. J. Pearson and Harvester; while outstanding in the collection from the Gayborder Nurseries were Phoenix, Bronze Early Buttercup, Pink Dame and Crimson Circle.

In the bright and tastefully arranged display by Messrs. K. Luxford and Co., there were grand blooms of Pink Delight, September Glory, Crimson Circle, Elsenham White, very fine; Goldfinder, Almirante, Harvester, Shirley Pride and Mrs. Jack Pearson; while the best in the small collection staged by Mr. H. Woolman were Nesta, Bronze Early Buttercup, The Provost, Cissbury White, Golden Security, K. Osborne, Brightness and F. J. Woods.

HARDY BORDER FLOWERS.

An attractive display of seasonal border flowers was made by Messrs. George Jackman and Sons, with various Heleniums, Rudbeckias, Physalis Bunyardi and a quantity of Gaillardia Tangerine. On a long stretch of tabling, Messrs. B. Ladhams, Ltd., grouped many of their valuable tall-growing Lobelias, particularly the varieties Shirley Crimson, Velvet, Mrs. Humbert and Purple King, with the best Heleniums, Gaillardias, Sidalceas, Trollius Golden King, Lavatera Olbia and many other plants. Mr. G. Reuthe associated Lilium tigrinum with Physalis Bunyardi, Eupatorium ageratoides, Eryngiums and many Michaelmas Daisies.

In the Orchid Annexe the Central Gardens Supplies had an interesting selection of flowers which included several showy Helianthuses and the allied Heleniums, Colchicums and Michaelmas Daisies. Tritomas of merit, Sidalceas, Iceland Poppies, Michaelmas Daisies and Gladioli were well shown by Messrs. Harkness and Sons, while Messrs. E. J. Redgrove and Son set up very good Delphiniums, with Tritomas, early-flowering Chrysanthemums and Michaelmas Daisies. The extensive collection of border flowers arranged by Messrs. M. Prichard and Sons included particularly good varieties of Anemone japonica, herbaceous Phlox, Poterium obtusum, Pyrethrums, Heleniums and Tritomas. Echinacea purpurea, Coreopsis grandiflora and Heleniums were prominently displayed with Michaelmas Daisies by Mr. A. Miles.

Very good spikes of late Delphiniums, especially the varieties Princess Elizabeth, Rose Marie, Nora Ferguson, Welshman and Theodora, were staged by Messrs. Hewitts. Messrs. G. Gibson and Co. had a large stand of a brilliant orange-coloured Iceland Poppy with their collection of dwarf Junipers and Ericas and alpines in pots. Phlox maculata var. Alpha, several very good Montbretias, Scabious and Colchicums were set out by Messrs. Oliver and Hunter, who also showed several flowers of the fragrant Lilium philippinense formosum, Price's variety.

Several robust varieties of Antirrhinum, shown by Messrs. W. H. Simpson and Son, included, in The King, Aurore and White Wings, three of the desirable intermediate type. They also had a very good selection of Montbretias. The Hon. Mrs. Montagu also had some good Montbretias which included the varieties Jessie, Mrs. E. S. Montagu and R. C. Notcutt, of deep colouring, and Montagu, yellow; Lady Wilson, pale orange; and Queen Alexandra, medium yellow. Messrs. Isaac House and Sons had such varieties as Clive Greaves, blue; Highgrove, pale lilac; and Leonard, dark blue, among their valuable Scabiosa caucasica forms, and some Tritomas. Mr. James MacDonald made one of his fascinating gardens of lawn and other grasses in the new hall.

A very good collection of herbaceous Phloxes, shown by Messrs. E. F. Fairbairn and Sons, included Sir Douglas Haig, Veronica, Purple Robe, Bright Eye and Joan Fairbairn. Messrs. Blackmore and Langdon staged many fine Phloxes, particularly Rynstroom, Evelyn, Daily Sketch, Viking and Firebrand. In their collection of herbaceous Phloxes, Messrs. John Forbes, Ltd., showed strong trusses of Border Beacon, Mrs. G. McBeth, and Sir T. Henderson. They also staged good Pentstemons and Dahlias.

On a large floor space, Messrs. Wallace and Co. showed a large quantity of Lilium tigrinum, Lilium sulphureum, Lilium auratum var. platyphyllum and several good varieties of Lilium speciosum. Below the Liliums, they arranged vases of Montbretias and Michaelmas Daisies. Mr. Amos Perry also showed varieties of Lilium speciosum and Lilium Henryi with Coreopsis grandiflora, Perry's var. and Aster Amellus varieties.

In the old hall, Mr. Amos Perry set out one of his excellent water and bog gardens. In this he had a great variety of aquatics, grasses, reeds and rushes, Cyperus gracilis, Lysimachias, Nelumbiums, and the yellow Xanthosoma violaceum which recently received an Award of Merit. Messrs. Hillier and Sons also made a pool in which they placed some good Nymphaeas, and around it they showed Zauschneria californica, Artemisias, Pontederia cordata, Hypericum chinense and Yuccas. Messrs. L. R. Russell, Ltd., had a small, raised pool with a few Nymphaeas, a rock garden furnished with Sempervivums and, at one end, a good collection of hardy Fuchsias in small pots.

An extensive collection of Gladioli, principally of the large-flowering sorts, was arranged by Messrs. R. H. Bath, Ltd. This included very good spikes of Dawn, Mrs. Frank Pendleton, Nimrod, Purple Glory, Chateau Thierry, Byron L. Smith, Floral, Rose Precoce, J. T. Pirrie and Captain Boynton. The Orpington Nurseries showed such Gladioli as Willy Wigman, America, Van Beieren, Chris and Czar Peter in round baskets, while Messrs. Daniels Bros., Ltd., associated their Gladioli with Montbretias and many flowers of Gaillardia Tangerine.

ROCK GARDENS.

Dwarf trees and shrubs were the principal feature of most of the small rock gardens, which were made in the old hall. This was particularly interesting as, we believe, the exhibitors in the new Horticultural Hall were informed by an official of the Society that, as the next show was especially for trees and shrubs, none would be allowed on the present occasion. This rule was enforced so strictly that exhibitors were compelled to remove small sprays of shrubs which they had used as backing to Dahlias and other flowers. Objection does not seem to have been raised to the similar use of greenhouse plants, principally Maidenhair Ferns, for which there is also a special occasion.

However, the dwarf Conifers and various shrubs of the rock gardens were typical and appropriate to their positions, and we have no doubt that, while they must have offended the official eye, the visitors and exhibitors approved. With their dwarf Conifers, Heaths and the like, Messrs. M. Prichard and Sons planted Zauschneria californica, Colchicums, Campanulas, Cyclamens, Geums and Erigeron Ada Gray. Mr. E. G. P. Wood planted Delphinium sinense, Gazania splendens and other flowers below Cotoneaster horizontalis and by Juniperus Sabina var. tamariscifolia. He also had a model paved path.

Well placed boulders, colonies of dwarf, upright Irish Junipers, breadths of Colchicum Parkinsonii and Nierembergia rivularis were the chief features of the rock garden made by Mr. Clarence Elliott. In one nook he planted Buddleia variabilis var. nanhoensis and Zauschneria californica in another. Mr. W. E. Th. Ingwersen exhibited a rock garden of uncommon outline. He had many dark green Pinuses at the back and below planted various Colchicums, Sedums, dwarf Campanulas and Gentiana Farreri. Mr. P. Gardner had low groupings of Conifers and Heathers, with border plants and alpines. Messrs. John Scott and Co. filled a table space with Conifers, Barberries and alpines. Mr. Stephen Sims also showed Conifers and alpines.

An effective rock garden, planted chiefly with Heaths, including the new Calluna vulgaris var. flore pleno, Cotoneasters, Fuchsias, Potentillas, Saxifrages and Nierembergia rivularis, was made by Messrs. Maxwell and Beale. Messrs. G. and A. Clark, Ltd., showed various alpines in pots and, in another place, had fine spikes of Lilium tigrinum, with various Tritomas and other border flowers. In their small rock garden, the Cambria Nurseries planted suitable Conifers, Gentiana Farreri, Androsace lactea, Papaver alpinum and Dianthus Spark. Mr. J. Robinson showed herbaceous Phloxes, Golden Rod, Michaelmas Daisies and alpines.

A mossy bank was planted by Messrs. Backhouse, Ltd., with low Conifers and other effective shrubs, Campanulas, Sempervivums and Fuchsias. Messrs. Reamsbottom and Co. had many handsome flowers of their St. Brigid Anemones. The Misses Hopkins had a seasonable collection of good border flowers and alpines.

An informal rock garden provided a fitting place for the rock alpines which Messrs. Allwood Bros. term "Allwoodii alpinus." These compact little plants are stated to flower continuously from spring to winter, and when out of bloom the foliage alone is very attractive. The principal varieties were Ariel, blush-mauve; Pixie, fringed white; Tinkabell, pale pink; Oberon, cerise; and Titania, maroon.

BEGONIAS AND CACTI.

In the new hall, Messrs. Blackmore and Langdon exhibited a quantity of their magnificent double-flowered Begonias. As usual, the plants illustrated a first-rate strain and expert cultivation. The many flowers were of great size, perfect form and clear colours. The arrangement of the group was very pleasing. The principal varieties were E. J. Henderson, scarlet; Lord Lambourne, orange; Madame Louise Laroque, picotee-edged white; Mary Newman, yellow; Mrs. E. Ramsden, rose; Queen of the Belgians, pink; and Robert, deep crimson. Miss S. S. Thompson staged a very interesting collection of succulent plants. These were mostly small, but well-grown, specimens illustrating many genera and varieties.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. J. Cheal, Mr. H. S. Rivers, Mr. E. A. Laxton, Mr. F. Bostock, Mr. A. Poupart, Mr. E. Beckett, Mr. F. G. Treseder, Mr. A. W. Metcalfe, Mr. G. F. Tinley, Mr. A. Bullock, Mr. A. C. Smith, Mr. W. Poupart and Mr. A. N. Rawes, Secretary.

THE BUNYARD CUP.

At the meeting of this Committee on August 28 of last year, Messrs. Laxton Bros., Bedford, showed a new seedling Apple named Epicure, of such good quality that the Committee recommended it for the Bunyard Cup, subject to it being shown again this year, in accordance with the rules governing the bestowal of this award, to ensure its having maintained the high quality first evidenced. Specimens of this Apple were exhibited at the present meeting, when the Fruit and Vegetable Committee confirmed its previous high opinion of it and awarded it the Bunyard Cup, the award being subsequently confirmed by the Council. Apple Epicure has for its parentage the popular varieties Cox's Orange Pippin and Wealthy. The fruit is of medium size, rounded, with a shallow, closed eye and a slender stalk set in a rather deep cavity. The skin is yellowish-green flushed red; the flesh moderately firm and crisp, and the flavour rich and pleasantly sweet. Apple Epicure was illustrated in our issue of December 29, 1928, Fig. 228, p. 511.

A yellow-fruited Tomato named Primrose Bloom, exhibited by Dr. A. H. Williams, Horsham, was recommended for trial at Wisley.

Awards of the Council.

Wigan Cup.—For the best exhibit of Roses staged on an area not exceeding one hundred square feet. To Messrs. T. Robinson and Son.

Silver Cup.—To Messrs. S. McGredy and Son, for Roses.

Gold Medals.—To Messrs. R. H. Bath, Ltd., for Gladioli; Messrs. Blackmore and Langdon, for Begonias; Messrs. Alex. Dickson and Sons, Ltd, for Roses; Messrs. Dobbie and Co. Ltd., for Dahlias; Mr. J. B. Riding, for Dahlias; and to Messrs. T. Robinson and Son, for Roses.

Silver-gilt Lindley Medal.—To the Hon. Mrs. Montagu (gr. Mr. J. E. Fitt), for Montbretias.

Silver-gilt Flora Medals.—To Messrs. Dickson and Robinson, for Dahlias; Mr. J. W. Forsyth, for early-flowering Chrysanthemums; Mr. H. J. Jones, for Dahlias; Messrs. Keith Luxford and Co., for early-flowering Chrysanthemums; Mr. Amos Perry, for aquatic and waterside plants; Mr. George Prince, for Roses; and to Messrs. W. Treseder, Ltd. for Dahlias.

Silver-gilt Banksian Medals.—To Mr. T. Bones, for Michaelmas Daisies; Messrs. Chaplin Bros., for Roses; Messrs. Jarman and Co., for Dahlias; The King's Acre Nurseries, for Dahlias; Messrs. M. Prichard and Sons, for herbaceous plants; Messrs. J. Stredwick and Son, for Dahlias; Messrs. R. Wallace and Co., Ltd., for Lilies and other herbaceous plants; Mr. W. Wells, junr., for Michaelmas Daisies and other herbaceous plants; and to Mr. H. Woolman, for Dahlias and early-flowering Chrysanthemums.

Silver Flora Medals.—To Messrs. Barr and Sons, for Montbretias, Michaelmas Daisies and other herbaceous plants; Messrs. Ben. R. Cant and Sons, for Roses; Messrs. Carter Page and Co., Ltd., for Dahlias; Dowty's Rosery, for Roses; Mr. Gavin Jones, for herbaceous plants; Messrs. B. Ladhams, Ltd., for Lobelias and other herbaceous plants; Mr. J. H. Pemberton, for Roses; Messrs. M. Prichard and Sons, for rock garden plants; Messrs. D. Prior and Sons, for Roses; Messrs. L. R. Russell, Ltd., for water and rock garden plants; and to Mr. J. T. West, for Dahlias.

Silver Banksian Medals.—To Mr. J. C. Allgrove, for Roses; Messrs. Allwood Bros., for Pinks and Border Carnations; Messrs. Bakers, Ltd., for herbaceous plants; Mr. E. Ballard, for Michaelmas Daisies; Messrs. G. Bunyard and Co., Ltd., for Asters and other herbaceous plants; Messrs. J. Cheal and Sons, for Dahlias; Messrs. W. Easlea and Sons, for Roses; Mr Clarence Elliott, for rock garden plants and dwarf Conifers; Messrs. E. F. Fairbairn and Sons, for Phloxes; Messrs. J. Forbes, Ltd., for Phloxes, Pentstemons and Dahlias; The Gayborder Nurseries, for Michaelmas Daisies; Messrs. Harkness and Sons, for herbaceous plants and Gladioli; Messrs. R. Harkness and Co., for Roses; Mr. H. Hemsley, for Dahlias and hardy flowers; Messrs. W. Hewitt and Co., Ltd., for Roses; Messrs. W. Hewitt and Co., Ltd., for Delphiniums; Mr. Elisha J. Hicks, for Roses; Messrs. Isaac House and Son, for Scabious and Kniphofias; Mr. W. E. T. Ingwersen, for rock garden plants and dwarf Conifers; Messrs. G. Jackman and Son, for herbaceous plants; Mr. Jas. MacDonald, for a grass garden; Messrs. Maxwell and Beale, for rock garden plants; Messrs. Oliver and Hunter, for herbaceous plants, bulbous and other rock garden plants; Messrs. Rich and Cooling, for herbaceous plants; Messrs. T. Smith and Sons, for Roses; The Stanway Rose Gardens, for Roses; Miss S. S. Thompson, for Cacti; Messrs. Warner and Son, for Roses; Messrs. Wheatcroft Bros., for Roses; and to Messrs. Wm. Wood and Son, Ltd., for herbaceous plants.

Flora Medals.—To Messrs. A. J. Allen and Co., for Roses; Mr. R. J. Case, for herbaceous plants; Mr. A. Miles, for herbaceous plants; Messrs. W. H. Rogers and Son, Ltd., for rock garden plants and shrubs; and to Mr. G. E. Welch, for rock garden plants.

Banksian Medals.—To Messrs. Backhouse Nurseries, for rock garden shrubs and plants; Messrs. G. and A. Clark, Ltd., for herbaceous plants; Mr. H. Clarke, for Dahlias; Messrs. W. Cutbush and Son, Ltd., for Michaelmas Daisies and Dahlias; Mr. R. Gardner, for rock garden plants; Messrs. G. Gibson and Co., for rock garden plants and dwarf shrubs; Mr. S. J. Goodliffe, for Dahlias and herbaceous plants; Messrs. Hillier and Sons, for water and rock garden plants; Messrs. W. Keep and Co., for herbaceous plants; The King's Acre Nurseries, for early-flowering Chrysanthemums; The Little Munden Nursery, for herbaceous plants and Dahlias; the Orpington Nursery Co., for Gladioli; Mr. Amos Perry, for herbaceous and bulbous plants; Messrs. E. J. Redgrove and Son, for herbaceous plants and Gladioli; Mr. G. Reuthe, for herbaceous and rock garden plants; Mr. F. Rich, for herbaceous plants; Messrs. J. Robinson and Sons, for rock garden and hardy plants; Messrs. W. H. Simpson and Sons, for Antirrhinums and Montbretias; Messrs. Tuckers, Ltd., for herbaceous and rock garden plants; Mr. Charles Turner, for Dahlias; Mr. G. E. P. Wood, for rock garden plants; and to Mr. Wm. Yandell, for Dahlias.

ASSOCIATION OF PARKS AND BOTANIC GARDEN SUPERINTENDENTS.

About thirty members of the North-western Branch of this Association paid a visit to Blackburn on Saturday, September 14. The party was met by Mr. E. Winsor, Superintendent of Parks, and proceeded to the Town Hall, where they were joined by several members of the Blackburn Parks Committee, and a motor-coach was kindly provided by the Parks Committee. Arriving at the main entrance to Corporation Park, on Preston New Road, the party first inspected the beautifully laid-out Garden of Remembrance and War Memorial situated just within the entrance. Corporation Park lies on the hillside above the town, and is about sixty acres in extent. It is a very fine example of a natural park, and the landscape gardener has taken full advantage of the natural features in planning the lay-out of the park. There is a rise from the main entrance to the highest point of three hundred feet whence an extensive view of the hills to the north and east of the town is obtained. An ornamental lake which was originally constructed as a service reservoir is situated near the centre of the park, and advantage has been taken of the stream flowing from the lake to construct a series of delightful waterfalls and rockeries in proximity to the main path, culminating in a pool in the Garden of Remembrance.

The conservatory and flower beds in the higher portion of the park were inspected as also were the bowling greens and hard tennis courts, the majority of which have been constructed under the supervision of Mr. Winsor during the past few years. A well conceived scheme at the top of the park which includes ten hard tennis courts together with a tennis pavilion and café was constructed at a cost of £17,000, chiefly by means of distress labour. The promenade, from which a good view of the remainder of the park and of the town is obtained, consists of a wide path running almost across the entire length of the park, and this is bordered on the lower side by a line of Lime trees and on the opposite side by a high bank planted chiefly with Rhododendrons. The general appearance of the park was favourably commented upon by the members of the party, and reflects great credit on Mr. Winsor and his staff.

The Cemetery was next visited, and the party then proceeded to Roe Lee Park, which has recently been laid out in connection with a municipal housing scheme. The absence of the usual boundary railings and entrance gates was noted, and members were pleased to observe that the residents in the adjoining houses evidently respected the confidence placed in them by the Parks Committee as there was no evidence of damage to plants or property. The last park to be visited was Queens Park, the chief features noted being the beautiful borders of mixed flowers near the entrance, and the bowling greens.

The party then adjourned to the Town Hall for tea, where the Deputy Mayor (Councillor Stanworth) said that it gave him great pleasure on behalf of the Parks Committee to welcome the members of the Parks Superintendents Association to Blackburn. He said the citizens of Blackburn were very proud of their parks and of the improvements carried out by Mr. Winsor. A vote of thanks to the Parks Committee for their hospitality and to Mr. Winsor and his staff was ably proposed by Mr. W. W. Pettigrew (Vice-President of the Association), and seconded by Mr. M. Morgan (Chairman of the North-western Branch).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Southport Flower Show on Wednesday, August 28, 1929, the members of Committee present were Messrs. Hy. Astley Bell (in the chair) J. B. Adamson, A. Burns, B. Collins, A. Coningsby, J. Evans, A. Keeling, G. V. Llewelyn, W. J. Morgan and H. Arthur (Secretary). Messrs. W. Mansell and E. Tack were invited to sit with the Committee.

First Class Certificates.

Brasso-Laelio-Cattleya Alfred Mollett var. *Vivid* (a Silver-Gilt Medal was also awarded); *Odontonia Etna* (*Miltonia chelseaensis* × *Odm. Ithone*); and *Vuylstekeara Rudra* var. *Atlas* (*V. Brewii* × *Odm. Prince Edward*). From J. B. Adamson, Esq.

Laelio-Cattleya Canberra var. *Sunset*. From Messrs. Charlesworth and Co.

Cattleya Vesta var. *Queen Mary*. From Mr. John Evans.

Cattleya Canberra var. *Prince of Wales*. From Messrs. Stuart Low and Co.

Awards of Merit.

Cypripedium Hurrellianum (*C. Curtisii* × *Argus*); *L.-C. Canberra* var. *Golden Queen*; and *L.-C. Modosa* (*L.-C. St. Gothard* × *C. Hardyana*); From Messrs. A. J. Keeling and Sons.

Odontoglossum crispum var. *Trianae magnificum*. From J. B. Adamson, Esq.

Odontioda Acis (*O. Ithone* × *Clovis*). From Messrs. Charlesworth and Co.

Cattleya Hardyana var. *alba exquisitum*. From Mr. John Evans.

Botanical Certificates.

To Miltonia Schröderiana; Bulbophyllum grandiflorum and Eria rhyncostyloides. From Messrs. A. J. Keeling and Sons.

Groups.

Gold Medals.—To J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool; Messrs. Charlesworth and Co.; Mr. John Evans; and Messrs. A. J. Keeling and Sons.

Silver-Gilt Medals.—To A. T. Cussons, Esq. (gr. Mr. A. Dalgleish), Kersal, near Manchester; and Messrs. Stuart Low and Co.

Large Silver Medal.—To Messrs. Sutton Bros.

At the meeting held at the Salford Flower Show, Buile Hill Park, on Tuesday, September 3, 1929, the members of Committee present were Messrs. J. B. Adamson (in the chair), A. Burns, A Coningsby, A. Keeling and H. Arthur (Secretary). Messrs. J. Howes and C. F. Potts were invited to sit with Committee.

First Class Certificates.

Laelio-Cattleya Profusion var. illuminata (a Silver-Gilt Medal was also awarded); *L.-C. Hilary*; *L.-C. Chimera, Cattleya Monarch var. Salford, C. Lorna var. gigantea, and C. Etta var. The Pearl.* From Messrs. A. J. Keeling and Sons.

Vanda coerulea var. Salfordii. From J. McCartney, Esq.

Awards of Merit.

Laelio-Cattleya Profusion, Hey House var., and *L.-C. Profusion var. Cassie.* From J. McCartney, Esq.

Cultural Certificates.

To Mr. J. Howes, for Oncidium varicosum var. Rogersii and Maxillaria lepidota; Mr. C. F. Potts, for Vanda coerulea var. Salfordii.

Groups.

Gold Medals.—To J. B. Adamson, Esq., (gr. Mr. J. Howes), Blackpool, and Messrs. A. J. Keeling and Sons.

Large Silver-Gilt Medals.—To A. T. Cussons, Esq. (gr. Mr. A. Dalgleish), Kersal, Manchester; and J. McCartney, Esq. (gr. Mr. C. F. Potts), Hey House, Bolton.

At the meeting held on Friday, September 13, the members of Committee present were Messrs. J. B. Adamson (in the chair), A Burns, A. Coningsby, J. Evans, A. Keeling and H. Arthur (Secretary).

First Class Certificate.

Cattleya Wavriniana (*C. granulosa × gigas*). From Messrs. A. J. Keeling and Sons.

Groups.

Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns), Bury, staged a group to which a Large Silver Medal was awarded. This contained Cypripedium Maudiae, C. Rossettii, C. Ernest Read and C. Curtisii; a fine batch of specimen plants Odontoglossum grande, was also included. Captain Horridge (gr. Mr. A. Coningsby), Bury, staged Cattleya Princess Royal, C. gigas and some hybrids. Messrs. A. J. Keeling and Sons showed Cypripedium The Major, C. Fairrieanum and C. Maudiae, Westonbirt var.; with Cattleya Hardyana var. alba. Mr. John Evans, Colwyn Bay, showed Oncidium incurvum and Cypripedium T. N. Abbott.

NATIONAL CHRYSANTHEMUM SOCIETY.

At the meeting of the Floral Committee held at the R.H.S. Hall, on Monday, September 23, thirteen novelties were brought forward and four awards were made, as follow:—

First Class Certificates.

Assurance. II. 1b.—A useful early Decorative variety of moderate size; the colour is glowing chestnut-red with dull gold tips to the central florets. The foliage is rather heavy for the size of the flowers.

Dart. II. 1c.—A very attractive flower, a trifle small, perhaps, but of good substance, with the central florets slightly cupped. The colour is bright chestnut, with gold tips. This and the foregoing was shown by Mr. J. A. Barrell.

Bridesmaid. II. 1b.—In this graceful variety the florets are pointed. The colour is salmon-pink with a fawny shading on the central florets. This and the following variety was shown by Mr. H. Shoesmith, junr.

Solidity. II. 1b.—A beautifully bright flower of good size and form. The colour is gold, faintly tinted with bronze. The florets are broad and slightly cupped at the ends; stem good.

ANSWERS TO CORRESPONDENTS.

Ampelopsis and Ivy on a Wall.—*W. E. P.* Of the two plants named, Ivy could do the greater damage, if moisture were to cause it to develop true roots in any of the seams between the masonry. The clinging roots of either could do little damage to bricks or stone; but if attached to mortar, some pieces of the latter might be hauled out, if the stems of Ampelopsis or Ivy were loose. Another kind of damage is done when either of these plants is allowed to choke the gutters at the eaves. Rain-water, in this case, sometimes runs down the interior of the wall, making it wet to the foundations. A redeeming feature of Ivy is that it is evergreen and keeps off rain in summer and winter. You do not state the nature of the damage, but in the case of mortar, it would be well to observe or ascertain whether or not the damage is done by pigeons, sparrows or other grain-eating birds, by picking out the mortar to get grit to grind their food. This has been done to a serious extent by pigeons on St. Paul's Cathedral, London.

Bouvardia Humboldtii.—*G. B.* This species of Bouvardia is easily propagated by means of cuttings of the young shoots inserted early in the year; they are best secured about three to four inches in length, and if placed in pots of sandy soil they root readily in a warm propagating case. They may also be readily increased by means of root cuttings, selecting the thickest roots for this purpose; these may be cut into pieces about one inch in length and inserted in pots of sandy compost, plunging the pots in a warm case. Plants may be grown in cold frames during the summer, or they may be planted out-of-doors in well-manured ground; this species, in fact, makes a good summer-bedding plant, for which purpose it is sometimes used in public parks. You could possibly procure it from Messrs. L. Russell, Richmond Nurseries, Sheen Road, Richmond, Surrey.

Buddleia alternifolia.—*A. S. W.* This species was introduced by Purdom and Farrer, about 1916, by means of seeds sent home from Kansu. Buddleia alternifolia was described and figured in *The Gardeners' Chronicle* of July 11, 1925 (p. 27, Vol. LXXVIII).

Grapes Failing.—*D. M.* It would appear that your Muscat of Alexandria vine has been overcropped; the fruits are suffering from what is commonly termed shanking. The Black Hamburgh Grapes are attacked by rust; red spider and green fly were also present. The Tomato was a double fruit. The drought is probably responsible for the bud-dropping of your Delphiniums.

Names of Fruits.—*W. S.* Plum Crimson Drop, probably.—*F. P.* Peaches: 1, Sea Eagle; 2, probably Thomas Rivers. — *Reading:* Apples: 1, Lady Sudeley (yellow); 2, Worcester Pearmain (red). — *A. J. R.* 1, Medlar, poor specimen, appreciated by some as desert when the fruits are in a state of decay; 2, Quince, used in the making of preserves and for flavouring Apples in cooking. —*D. A., Midlothian.* Peach, perished in post.

Names of Plants.—*W. H. S.* Cupressus sempervirens. — *J. T.* Larix europaea (Common Larch).—*J. C.* Oncidium incurvum. — *G.* 1, Dierama pulcherrima; 2, Funkia cordata; 3, Cynoglossum officinale; 4, Oxalis purpurea; 5, Sedum reflexum; 6, Alströmeria aurantiaca; 7, Linaria maroccana; 8, Clematis species, not recognised; 10, Erica vagans var. — *D. M.* 1, Calceolaria species, not recognised; 2, Cupressus orientalis var. aurea; 3, Golden Yew; 4, Lonicera nitida; 5, Polygonum sacchalinense; 6, Spiraea species; 7, Geranium pratense var. flore pleno; 8, a form of Geranium sanguineum; 9, Chelone obliqua.—*D. M.* Saponaria officinalis.—*G. M.* Silene compacta. — *E. J. B.* 1, Pterostyrax hispida (syn. Halesia hispida); 2, Syringa Emodii; 3, Celtis australis; 4, Stachys lanata; 5, Physostegia virginiana.—*A. C.* Emilia flammea.—*R. M.* Nicotiana rustica variety.— *G. S.* 1, A Veronica, impossible to name without flowers; 2, Achillea Millefolium; 3, Stachys lanata; 4, Coronilla Emerus (the Scorpion Senna).—*M. A. C.* 1, Inula Helenium; 2, Salvia glutinosa; 3, Tanacetum boreale; 4, Chrysanthemum macrophyllum; 5, Atropa Belladonna; 6, Lysimachia vulgare; 7, Borago officinalis; 8, Campanula Grossekii; 9, Geranium sylvaticum; 10, Pyrethrum Parthenium var. plenum; 11, Brickellia grandiflora; 12, specimen missing; 13, Carex pendula; 14, Polygonum cuspidatum; 15, Polygonum paniculatum; 16, Lathyrus niger.—*H. M.* Bougainvillea glabra; 2, Hoya carnosa; 3, Celosia plumosa; 4. Tecoma radicans; 5, Plumbago; 6, Nerium Oleander; 7, Coleus, variety not recognised. — *L. C.* 1, Galium verum; 2, Phyteuma orbiculare.—*C. M.* Catalpa bignonioides.—*P. C.* 1, Echinops Ritro; 2, probably Echinops viscosus; 3, Eryngium dichotomum; 4, Hypericum Hookerianum; 5, Spiraea Bumalda variety; 6, Olearia Haastii; 7, Spiraea Bumalda var. alba; 8, Solidago missouriensis; 9, Ceanothus azureus. — *E. H. T.* A Campanula of hybrid origin, not recognised.—*F. W.* Catalpa bignonioides. *A. H.* Insufficient material sent. —*J. M.* 1, Probably Spiraea canescens; 2, Cotoneaster frigida; 3, Rhus Cotinus.—*F. D.* (a) and (b) not recognised, send when in flower; (c) Tradescantia virginiana; (d) Ruscus aculeatus.— *G. S.* 1, Veronica Teucrium; 2, Stachys lanata; 3, Achillea Millefolium var. roseum; 4, Allium Moly; 5, Coronilla Emerus.— *T. R.* 1, Campanula garganica; 2, Campanula pusilla var. alba; 3, Veronica. not recognised.— *B. H. C.* 1, Begonia Luzerna; 2, Fuchsia corymbiflora; 3, Rondeletia odorata; 4, Dicksonia fibrosa; 5, Cyperus adenophorus; 6, Helenium autumnale var. striatum.— *C. H. W.* 1, Lilium sulphur-gale, a garden hybrid; 2, L. Wardii.—*C. D.* Helianthus mollis; North America, 1805.—*N. M. C.* Physostegia virginiana.—*J. M.* Lilium Henryi.—*P. G.* Nymphaea Marliacea var. alba.—*F. W. W.* 1 Pinus excelsa; 2, Pyrus Torminalis; 3, Pyrus Aucuparia; 4, Crataegus orientalis; 5, Juniperus virginiana; 6, Tilia petiolaris.—*J. F.* Probably Spiraea discolor, please send when in flower.

Plums Deformed.—*G. M.* The injuries to your Plums were probably caused at an early stage by cold winds, or by aphis.

Peaches Decaying.—*C. M.* The Barrington Peaches sent had split stones which was the cause of the fruits going bad around them. This variety is rather subject to stone-splitting and although very hardy, it requires good cultivation to bring out its best qualities. Remove the surface soil down to the roots during the winter months and top-dress with good loam and a liberal supply of old mortar-rubble or broken chalk, with a good sprinkling of bone-meal; this, with more liberal treatment during the growing season, should prevent stone-splitting in the future.

Communications Received. — W. E. S. C.— A. A. P.—F. B.—K. Y.

MARKETS.

COVENT GARDEN, Tuesday, September 24, 1929.

WE cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.... ...	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums	18 0-24 0
Crotons, per doz.	30 0-45 0
Cyrtomiums ...	10 0-12 0

	s. d. s. d.
Hydrangea paniculata ...	18 0-24 0
Lilium longiflorum, per doz.	18 0-24 0
—speciosum rubrum, per doz.	18 0-36 0
Marguerites, white, per doz.... ...	9 0-12 0
Nephrolepis, in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentias	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Roses, Polyantha, per doz. ...	15 0-18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	8 0—9 0
—cuneatum, per doz. bun. ...	5 0—6 0
Asparagus plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 6—2 0
—short „ ...	0 9—1 0
Asters, white, per doz. bun.	3 0—5 0
—mauve, per doz. bun. ...	3 0—5 0
—pink, per doz. bun.... ...	3 0—5 0
Carnations, per doz. blooms	1 6—3 6
Chrysanthemums, bronze, per doz. blooms	2 0—3 0
—white, per doz. blooms ...	3 0—6 0
—yellow, per doz. blooms	3 0 6 0
—pink, per doz. blooms ...	3 0—5 0
—bronze, sprays, per doz. bun.	4 0—9 0
—white, sprays, per doz. bun.	6 0—9 0
—yellow, sprays, per doz. bun.	6 0—9 0
—pink, sprays, per doz. bun.	6 0—8 0
Cornflowers, blue, per doz. bun.	1 6—2 0
Croton leaves, per doz. ...	1 9—2 6
Ferns, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	9 0-10 0
Gaillardias, per doz. bun. ...	2 0—2 6
Heather, white, per doz. bun.	6 0—8 0

	s. d. s. d.
Lilium longiflorum, long, per bun. ...	3 0—3 6
— — short, per doz. blooms	3 6—4 0
—speciosum album, long, per doz. ...	3 0—4 0
— — — short, per doz. ...	2 6—3 0
—auratum, per doz. blooms	5 0—6 0
Lily-of-the-Valley, per doz. bun.	24 0-30 0
Marigolds, per doz. bun. ...	1 6—2 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0-42 0
Physalis, per doz. bun. ...	12 0-20 0
Roses, per doz. blooms—	
—Columbia ...	2 0—3 0
—Richmond ...	1 6—3 0
—Yellow ...	1 6—3 0
—Molly Crawford ...	1 6—2 6
—Mad. Butterfly	1 6—3 0
Scabiosa caucasica, per doz. bun. ...	3 0—5 0
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	3 0—5 0
—white, per doz. bun.... ...	4 0—6 0
—yellow, per doz. bun. ...	4 0—5 0
—incana, per doz. bun. ...	9 0-10 0
Stocks, double white, per doz. bun.... ...	4 0—6 0
—mauve, per doz. bun. ...	6 0—8 0
Sweet Sultans, white, per doz. bun. ...	2 6—3 6
—mauve, per doz. bun. ...	2 6—3 6
—yellow, per doz. bun. ...	3 6—4 0
Zinnias, per doz. blooms ...	1 0—3 0

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Cox's Orange Pippin, tray	6 0-12 0
— ½-bushel case	7 0-15 0
—James Grieve, per tray ...	3 0—5 0
—Miller's Seedling, per tray	4 0—5 0
—per ½-bushel...	3 0—4 0
—per ½-bushel, selected ...	5 0—6 0
—Worcester Pearmain, per ½-bushel ...	3 0—7 0
—Lord Derby	4 0—6 0
—Warner's King, per bushel ...	4 0—6 0
Bananas, per bun.... ...	11 0-18 0
Grapes, English—	
—Alicante ...	1 3—2 0
—Gros Colmar	1 0—2 6
—Muscat of Alexandria ...	2 0—5 0
—Canon Hall ...	2 0—4 6
—Black Hamburgh, per lb.	1 0—2 0
Grape Fruits ...	20 0-27 6
Lemons, per case—	
—Messina ...	20 0-32 6
—Naples ...	25 0-32 6

	s. d. s. d.
Melons, each ...	1 0—4 0
Nectarines, per doz.... ...	4 0-18 0
Nuts, Cob, per lb.	0 4-0 4½
Oranges—	
—Cape, per case	10 0-15 0
—Brazilian ...	9 0-10 0
Peaches, per doz. ...	8 0-18 0
Pears, English—	
—William, per ½-sieve ...	4 0—8 0
—Dr. Jules, per ½-sieve ...	5 0—7 0
—Fertility ...	3 6—4 0
—Conference, per ½-sieve ...	4 0—5 0
Pineapples, case	21 0-36 0
Plums, English—	
—Monarch ...	7 0—8 0
—Pond's Seedling	7 0—8 0
—Victoria ...	8 0-10 0
—Damsons ...	4 0—5 0
—Bush... ...	4 0—5 0
—Switzer, per ½-sieve ...	4 6—5 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, Runner, per bushel ...	2 6—4 0
—French, per lb.	— 1 0
—Guernsey, per lb.	0 3—0 6
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-bushel ...	2 0—4 0
Cabbage, per doz.... ...	1 0—1 6
Carrots, per ½-bag, washed	2 6—3 6
Cauliflowers, flat, per doz. ...	2 6—4 0
Endive, French, per crate, 18's and 24's ...	6 0—7 0
— Batavia, per crate, 18's ...	4 0—5 0
Lettuce, Cabbage, 18's, 24's ...	3 0—4 6

	s. d. s. d.
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	2 6—3 0
—broilers ...	1 6—2 0
Parsnips, per cwt. ...	4 0—5 0
Potatos, cwt....	3 0—5 0
Tomatos, English, per box of 12 lbs.—	
—pink... ...	2 6—4 0
—pink and white	2 6—4 0
—white ...	2 0—2 6
—blue ...	1 6—2 0
—Guernsey ...	2 0—2 6
—Jersey ...	1 6—1 9
—Dutch, per tray, 28 lbs....	1 6—2 6
Turnips, per doz. bun. ...	4 0—6 0

REMARKS.—The market is handling very considerable quantities at the moment and from a business point of view conditions are fair, although in some sections lower values are reported. Hothouse fruits, such as Grapes, Peaches, Nectarines and Melons, are maintaining steady prices, although the supplies of Grapes from Holland and Belgium, and Peaches from Italy, are offering strong competition. In the English Apple market there is some congestion of second grade fruits, and although there is also a large quantity of first-grade Apples available, they are meeting a fairly good demand from buyers. Plums are in heavy supply, but values in this section are strong and all varieties are doing well from a price point of view. The Tomato trade is not good, a few high grade fruits sell well, but others feel the heavy supplies of Jersey Tomatos that are reaching this market. Cucumber business is brisker than it has been for some time and values have improved. Mushrooms are more plentiful and quoted easier. A few hothouse Beans from Guernsey are selling well. Salads are a good market. The root crop trade is slow, and the demand in the Potato market shows improvement.

GLASGOW.

There was no particular feature in the business transacted in the cut flower market during the past week, and prices remained steady. Spray Chrysanthemums sold for 2s. 6d. to 8s. per dozen bunches; disbudded, white blooms, 10d. to 1s. 6d. for 6's; bronze and pink, 8d. to 1s. 3d.; and yellow, 9d. to 1s. 6d. Roses, all varieties, were worth from 2s. to 3s. per doz.; Carnations, 1s. 3d. to 2s.; specials, 2s. to 3s.; Gladioli, 2s. to 3s. per dozen bunches of 3's; Lilium speciosum rubrum, 3s. 6d. per bunch; Richardias, 3s. 6d. to 4s. 6d.; Dahlias, 2d. to 5d.; Sweet Peas, 2d. to 4d.; Asters, 2d. to 3d.; Physalis, 1s. 6d. to 2s.; white Heather, 7d. to 9d.; Asparagus, short, 5d. to 8d. bunch; medium, 9d. to 1s. 6d.; trails, 1s. to 2s. 6d.

In the fruit market large daily supplies of Plums made remunerative prices. Victorias ranged from 6d. to 9d. per lb. for table qualities, and 2½d. for seconds; Monarch, 4d. to 7d.; and 2d. for seconds; Damsons, 4d. to 6d. Hothouse Grapes made 3s. 6d. per lb. for black and 4s. for Muscats; Peaches, 6s. to 12s. per dozen; Pineapples, 4s. 6d. to 5s. 3d. each; Melons, 2s. 6d. to 3s.; Hazel Pears, 2d. to 4d. per lb.; Williams's bon Chrêtien, 10s. per sieve (24 lbs.); cooking Apples, 7s. to 8s. 6d. (56 lbs.) for first quality, and 4s. to 5s. seconds; Blackberries, 5d. to 6d. per lb.

Tomatos were dearer at 5s. 6d. to 7s. per 12 lb. chip; Cucumbers, 5s. to 6s. per dozen; Cauliflowers, 2s. to 4s.; Lettuces, 2s. 6d. to 2s. 9d. per box of 15 and 18; Brussels Sprouts, 2s. 6d. per sieve; Parsley, 2s. (8 lbs.); and Mushrooms, 2s. 6d. to 3s. per lb.

TRADE NOTES.

MESSRS. R. WALLACE AND CO., The Old Gardens, Tunbridge Wells, the well-known nurserymen, will hold their Annual Sale of high-class nursery stock on Wednesday and Thursday, October 9 and 10. This event is growing yearly in importance, and the catalogue this year contains a greater variety of subjects than have previously been offered, including many new and rare Rhododendrons, Japanese Cherries, Conifers, Lilies, choice herbaceous and alpine plants, bulbs, etc., also a grand selection of Messrs. Wallace's famous Irises. The nurseries are situated just off the Frant Road to the south of Tunbridge Wells, and are well worth a visit, especially at the time of the sale, when many of the shrubs should be showing beautiful autumn tints. The sale is conducted by the well-known Auctioneers, Messrs. Protheroe and Morris, of 67-68, Cheapside, E.C., who will be pleased to send a catalogue, which may also be obtained at The Old Gardens, Tunbridge Wells.

PATENTS AND TRADE MARKS.—Any of our readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle.*

WEATHER IN AUGUST.

THIS was the first month since November, 1928, to yield any excess of rainfall. For the rest, it was chiefly characterised by sea- and warm-direction winds, gradually "backing," on the whole, from N.W., through W. and S.W. to S. Temperature was extremely equable, except during the concluding half-dozen days, which were materially warmer—although no maxima above 73° were experienced. The month's mean temperature was 59·3°, or a trifle of 0·2° above the average. There were 165 hours of bright sunshine, or eleven fewer than the normal number. Rain fell on twenty-one days, or four more than the average; and the amount was 4·03 inches, which implies a small surplus of 0·36 inch. The subsoil water, however, was at an exceptionally low level. Thunder was reported, on three occasions, but all were only moderate to slight manifestations. As in July, visibility, on numerous days, was extremely good. Ozone was more abundant than usual. Gales were absent. *Joseph Baxendell, The Fernley Observatory, Southport.*

SCHEDULES RECEIVED.

KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY.—Twenty-second Annual Exhibition, in the Assembly Rooms, Surbiton, on Wednesday, November 6, 1929.—Secretary, Mr. W. H. Divers, V.M.H., Westdean, Hook, Surbiton.

THE ROYAL HORTICULTURAL SOCIETY.—Fruit and Vegetable Show, to be held in the R.H.S. Halls, Greycoat Street and Vincent Square, S.W.1, on Tuesday and Wednesday, October 8 and 9, 1929.—Nut Competitions, to be held in the R.H.S. Hall, Vincent Square, S.W.1., on Tuesday, November 19, 1929. — Secretary, Royal Horticultural Society, Vincent Square, S.W.1.

GARDENING APPOINTMENT.

Mr. R. H. M. Ralph, for the past two years inside foreman at Cowdray Park, Midhurst, Sussex, as gardener to Major SCOTT, Willcamstrip Park, Coln St. Aldwyn, Cirencester, Gloucestershire. [Thanks for 2/- for R.G.O.F. Box.—EDS.]

THE
Gardeners' Chronicle

No. 2232.—*SATURDAY, OCTOBER* 5, 1929.

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Coloured Plate.
Rhododendron King George.

Average Mean Temperature for the ensuing week, deduced from observations during the last fifty years at Greenwich, 51·8°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, October 2, 10 a.m. (Greenwich time). Bar. 29·7. Temp. 58°. Weather, Showery.

Harvest Time.

The "rolling seasons" have brought us to harvest time once again, but, following an exceptionally hot and dry period, not "everything rejoices." The hay harvest is a small one this year, and although straw is short, the crops of Cereals have been quite good, and only the slothful husbandman has failed to harvest them in first-rate condition. The seed-grower, too, has much cause for gratitude, and some for disappointment. There must first be free growth before the flowers can be produced abundantly, but if growth and blossom are ample, then fine weather is the only other condition necessary for securing a good harvest of seeds. Climatic conditions have not been entirely favourable to good growth, for the year has given us intense cold, brilliant sunshine followed by cold nights, a low rainfall and then a long period of brilliant sunshine and high temperature with practically no rain. Notwithstanding all these difficulties, however, garden crops have been wonderfully good, particularly in deeply worked soil. Growth may not have reached that luxuriance commonly experienced when an average rainfall accompanies high temperature, nevertheless few gardeners have grave cause for complaint in this respect, although annual flowers and some vegetables have had a shorter spell of usefulness than usual. However, there are garden seeds in abundance this time, and those enthusiasts who maintain their own strains, or have varieties of their own raising, cannot fail to be grateful for a good harvest and good harvest weather. The fruit harvest of the year may be considered good, for although there appears to be a shortage of Apples, most other fruits, and particularly small fruits, have yielded abundantly, and seldom have Peaches and Nectarines ripened so well out-of-doors as in this year of abnormally dry and brilliant weather. The nurseryman who deals in trees and shrubs is, perhaps, in the worst case among horticulturists, for even although his stock of these increasingly popular subjects may not have suffered greatly, he is at present very anxious about the weather, as, indeed, are all those who have much planting in view. A heavy rainfall is needed over a very large area of the country before it will be possible safely to lift and safely to plant Roses, fruit trees and ornamental trees and shrubs. But even the nurseryman may find some cause for thankfulness, as surface cultivation and dry weather have prevented the growth of weeds, while sunshine has "ripened up the wood." But gratitude for the harvest is not the prerogative of farmers, gardeners, nurserymen and seedsmen, therefore in countless places of worship the festival of harvest is now kept as regularly as it was by Jewish congregations in days of yore. Indeed, it would seem to have been a very general practice throughout the ages to render thanks for Nature's bounty. But what of the worker? How many hundreds of thousands who sing with great heartiness "We plough the fields and scatter the good seed on the land" have ever ploughed a furrow, dug a rod of ground, or sown a seed? Our complex civilisation notwithstanding, "all flesh is grass" continues and will ever continue to be a true saying. We are all dependent upon Mother Earth for her bounty, but the great majority of people have little thought for the sons of the soil—those honest, sturdy folk, who by the sweat of their brows compel the earth to yield her increase. The ploughman and the gardener, essential though they be to our well-being, receive scant thanks for their skilled labour, often receive wages that would in many instances be rejected by the dustman and the road sweeper, and, alas, they are too often regarded—by people of small understanding—as occupying a very low place in society. Gratitude is a poor thing to live on; gratitude that is expressed in terms of decent wages and comfortable homes is the practical kind that encourages those upon whose skill and labour we depend for our harvest.

Our Coloured Supplement Plate.—We have pleasure in presenting as a Supplement Plate to this issue an illustration of the richly-coloured Rhododendron King George, of continental origin and introduced into commerce by Messrs. van Nes and Sons, of Boskoop. This variety was raised in the gardens of the Royal Porcelain Factory, Berlin, where a series of crosses was carried out between R. Aucklandii and some of the older garden hybrids, the resulting seedlings, including R. King George, being purchased by Mr. van Nes. Another beautiful Rhododendron from the same source is the variety Queen Wilhelmina. R. King George has lovely Gloxinia-shaped flowers of brilliant scarlet colouring, produced in compact trusses, and is one of the most attractive of the hybrid Rhododendrons of continental origin. Unfortunately, it may only be regarded as hardy in the more favoured parts of this country, and requires shelter in the colder localities.

Holly Trees, Colchester.—Thursday, September 26, was an important day for Colchester when, in ideal weather, the High Steward of the Borough, the Right Hon. Annie Viscountess Cowdray, opened the Holly Trees mansion and grounds to the public. The grounds of this splendid old mansion (which is now to be used as a museum) adjoin the Castle Park and add twenty-seven acres of beautiful grounds to the open spaces. These have been tastefully laid out to the designs of a well-known local architect, Mr. Duncan Clark, and the planting is to be entrusted to two local firms, Messrs. E. Abbott and Sons and Messrs. Alfred Bunting, together with Messrs. R. W. Wallace and Co., Ltd., of Tunbridge Wells and Mr. Alfred Dawkins, of Chelsea. Alderman A. Owen Ward, in proposing a vote of thanks to the High Steward, expressed the deep gratitude of the citizens of Colchester that she, together with the late Viscount Cowdray, had made it possible for Colchester to possess this added attraction.

List of Fellows of the R.H.S.—The Royal Horticultural Society has just published a list of its Fellows, Associates and Affiliated Societies up to May 31, 1929, and it is stated that the names and addresses of Fellows and Associates elected, and Societies affiliated after that date, will be recorded in a supplement to be issued in the Book of Arrangements for 1930. This publication, which will prove useful to many for reference purposes, may be obtained upon application to the Society's offices, Vincent Square, Westminster, S.W.1, the price being 2s. 6d. to Fellows and 5s. to non-Fellows.

Acquirement of Open Spaces for the Public.—The Metropolitan Public Gardens Association has several schemes in hand for the acquirement of various areas of land for the use of the public. It is seeking to secure the Lessness Abbey Farm estate, and towards the purchase price of this estate, which embraces 215 acres, the sum of £5,000 has already been promised by local authorities. It is stated that another proposal under consideration is that of the purchase of Little Head Woods, fifty-two acres in extent, near Purley, the price of which is £5,700, towards which £1,200 has been obtained from voluntary sources. A good deal of money has been promised towards the £515,000 necessary for the purchase by the Association of nine acres of the Foundling Hospital in Bloomsbury, and the Association hopes that it will be possible to induce the local authorities to assist in the acquisition of this area. Smaller schemes of acquisition which the Association has under consideration include: Four acres, Wesley Avenue, Acton; Westcroft Square, Hammersmith; a quarter-of-an-acre adjoining an existing recreation ground in Whitgift Street, Lambeth; eleven acres at Pridmore Green, near Purley; and Tredegar Square, Bow Road, E.

The Japanese Beetle in the United States.—It often happens that a plant, animal or insect, which in its native country is of no importance, when introduced to another country becomes there a serious pest, the reason being that conditions in the new country—absence of its natural enemies chiefly—are favourable to its rapid increase. Such an instance is the introduction of the Japanese Beetle to America. An account of its activities, with records of control measures adopted, is set forth by Mr. Loren B. Smith, of the Bureau of Entomology, U.S. Department of Agriculture, in the *Year Book* of The Academy of Natural Sciences of Philadelphia (December 31, 1928). The Japanese Beetle was first discovered in America in 1916, at Riverton, New Jersey, when the only literature available dealing with this insect (Popillia japonica) stated that it occurred generally throughout the Islands of Japan, but was not a serious pest. In America, however, it increased in economic importance so rapidly that in 1917 it was deemed advisable by Federal and State authorities to undertake co-operative action for its extermination, and in the summer of 1918 work in this direction was commenced, but although large sums of money were spent in trying to check the spread of the pest—the infected area was isolated by maintaining a coat of poison on all foliage on a strip of land approximately half-a-mile wide all round the area—it soon became apparent that all efforts in this direction were a failure, although continued unceasingly throughout 1919 and 1920.

One reason for this is that the beetle is a vigorous flier and can cover several miles in a single flight, while vehicles passing through the area also assisted in its distribution. Over two-hundred and-fifty species of plants are reported as host plants to the beetle, which is most destructive in the adult stage, although the larvae (like that of the common May Bug or Cockchafer in this country), may do considerable damage to the roots of grasses, and among the plants liable to attack almost all the economic crops are included. Among the twenty-five or thirty plants specially preferred by the Japanese Beetle are Apple, Peach, Quince, Cherry, Plum, Grape, Soy Bean and Corn, together with several important shade trees. It attacks foliage, flowers and fruits, the foliage showing evidence of attack most conspicuously and partial or practically complete defoliation often resulting, as the attack on a tree is usually carried out *en masse*. With fruits, it is the early ripening ones that suffer most; for instance, on certain Peach trees of the variety Rochester, Japanese Beetles were responsible for the spoliation of eighty-seven per cent. of the fruits. As a primary measure of control, quarantine measures were inaugurated in 1918 by the New Jersey Department of Agriculture, and later by other State authorities; during 1928, the movement of practically all farm products, and of all nursery stock, sand, soil, peat, compost and manure, from the affected areas, was forbidden, and it is stated that these drastic measures have been definitely successful in checking the spread of the pest. Quarantine on all nursery stock and soil is effective in all Japanese Beetle areas. All produce which it is desired to move out of infested areas has to be certified as clean, while "balled" nursery stock is treated with dilute emulsified carbon-bisulphide. Various methods for the control of this pest have been developed and are proving of value. Trapping of the insects, it is stated, is now practised generally, and by this means a certain measure of control is obtained. For non-fruiting and ornamental subjects, spraying with a composition of lead arsenate paste and lead oliate, the latter serving as an excellent sticker and spreader, has proved efficacious, while a composition now on the market and stated to be in general use as a contact spray consists of Coco-nut fatty acid soap with a small amount of oleo-resin of Pyrethrum and sodium silicate added. To secure a higher kill with arsenate washes, attrahents in the form of essential oils of the plants most favoured by the beetle, were added to the sprays; Geraniol was found to be the most active in attracting the beetles, and its use in this respect has proved successful. Soil sterilisation and fumigation are employed to kill the larvae. Five species of parasites have been introduced from the Orient and liberated in the infested zone, and at present two entomologists are stationed in Japan and Korea to capture and breed these parasites. One of these, a Tachinid Fly, attacks the adult beetle, while the other four—two Dixiids and two Solitary Wasps—parasitize the larvae. Mr. Smith's account is supplemented with several extremely good illustrations, one of which shows a host of beetles attacking an Apple on the portion not covered by the arsenical spray, and another, Birch trees completely defoliated by Japanese Beetles.

Holland County Potato Show.—The ninth Holland County Potato Show, of which the schedule has just been issued, will be held at Spalding on Thursday, October 24. Thirteen Cups are offered for competition, ranging in value from ten to thirty-five guineas. For the best bag of English-grown ware Potatos in the show, a Challenge Cup (value £21) is offered by the London, Fruit, Flower and Vegetable Markets' Association, Ltd., and for the exhibitor gaining the highest number of points for prizes won in the ware classes a Challenge Cup (value £21) is offered by the National Federation of Fruit and Potato Trades' Associations. Challenge Cups are also offered for ware Potatos (open to growers in Great Britain), and also for collections of Potatos. A Trophy is offered for competition by the South Lincolnshire Wholesale Potato Merchants' Association for the best trade exhibit of Potatos.

Mr. Edward Winsor.—Bryanston, Blandford, Dorsetshire, the residence of Lord Portman, was the scene of the commencement of Mr. E. Winsor's very successful horticultural career. At Bryanston Gardens he served under Mr. Leach, and later under Mr. A. J. Allsop, and at the end of six-and-a-half years he removed to Penrhyn Castle Gardens to serve for three years under Mr. Walter Speed. From Penrhyn, Mr. Winsor went to Sandringham Gardens to take charge of the Carnation houses and also be responsible for the decoration of York Cottage. He stayed at Sandringham for three years, and then took the post of general foreman, under Mr. Walter Barnes, at Bear Wood Gardens, and while he was there the produce from these gardens, especially fruits and Chrysanthemums, secured many trophies and prizes at the leading horticultural shows. In August, 1906, Mr. Winsor left Bear Wood Gardens to take up the post of head gardener to Mr. Martin John Sutton, at Holme Park, Sonning-on-Thames, but in 1908 he took service with Morland Agnew, Esq., Croxley Green, Hertfordshire. In 1915 Mr. Winsor took over the management of Roundhay Park, Leeds, and so entered the second phase of his career—that of public service. In 1918, he succeeded Mr. Allsop as Superintendent of Leeds City Parks, and so well did he manage the parks under his control that in 1921, when the Blackburn Corporation was contemplating the extension and alteration, on a large scale, of the parks and public gardens of Blackburn, Mr. Winsor was offered the charge of this work which, as Parks Superintendent, he is still ably carrying on. When the extremely unfavourable conditions under which Mr. Winsor has had to labour in this big industrial town are borne in mind, nothing but unstinted praise is due to him for the success which has crowned his labours. A brief description of the parks under Mr. Winsor's supervision appeared in our issue of last week, p. 254, being an account of a recent visit to Blackburn of the North-western Branch of the Parks and Botanic Garden Superintendents' Association, while the illustration of Roe Lee Park (Fig. 125), showing the many mill chimneys in close proximity to it, gives some idea of the difficulties with which Mr. Winsor has to contend and also of the manner in which he surmounts them.

MR. EDWARD WINSOR.

The Drought.—With the arrival of rain, the second drought of an exceptionally dry year has been terminated, and many gardeners, and nurserymen especially, will be rejoicing. In the London area no recordable amount of rain fell for a period of thirty-six days, and it is the longest drought recorded in London since the British Rainfall Organisation commenced to make observations in 1858. Previous to last Sunday, the last rainfall recorded in the London area was the limited amount of 0·6 millimetre, between 7 p.m. on August 22 and 10 a.m. on August 23. In the Thames Valley the rainfall for the year, so far, has only been about half the average. In a statement on the dry weather of 1929, the Air Ministry records that for the eight months January to August, 1929, small patches with half the average rainfall are found in Nottinghamshire, east Lincolnshire, on the borders of Berkshire and Hampshire, and in east Kent. An area with less that sixty per cent. runs as a belt across England and Wales, the belt broadening considerably in the centre, and embracing the whole, or the greater part of, the counties of Radnor, Hereford, Worcester, Gloucester, Oxford, Buckingham, Berkshire, Wiltshire, east Somerset, Hampshire, Surrey and Kent. It is too early as yet to compare the dry weather of the present year with that of 1921—when for the nine months February to October less than fifty per cent. of the average rainfall was recorded over south-east England and a considerable part of the southern midlands—as September is not included in the above records and later months may have to be reckoned with before a final pronouncement is made.

Cheshire County Orchard Competition—In order to encourage the improvement of neglected orchards in the county of Cheshire and to promote the further planting of orchards, the Cheshire Branch of the National Farmers' Union Fruit and Vegetable Committee, together with the Agricultural Education Committee of the Cheshire County Council, promoted the first Cheshire County Orchard Competition. Twenty-two farmers entered their orchards, the majority of them being in the cultivated arable land section. The two sections for the competition were: (1) Cultivated grassland orchard of half-an-acre or over; (2) cultivated arable orchard of half-an-acre or over. In the first section, Miss M. Bostock, Merefield, Haslington, won first prize, with seventy-five points; Mr. J. Kitchen, Spring Bank Farm, Winsford, second, with sixty-seven points; and Mr. P. E. Meeres, Stock Lane, Wybunbury, third, with forty-three points; while in Section 2, the winning orchard was that of Mr. H. C. Groome, Guilden Sutton, near Chester, awarded eighty-eight points; second, Mr. A. C. Greg, M.A., Ash House, Acton Bridge, with eighty-six points; and third, Mr. William Bibby, London Road, Frodsham, with eighty-two points. The Greg Silver Cup, for the best orchard in the county of Cheshire, was awarded to Mr. H. C. Groome, Fruit Farms, Guilden Sutton, Chester. Great praise is due to Mr. W. E. Shewell-Cooper, the Cheshire County Horticultural Superintendent, for the manner in which the competition was organised, and for the general improvements in fruit growing in the county as a result of his efforts.

Irish Gardeners' Association's Excursion.—On Wednesday, September 21, the Daisy Hill Nursery, Newry, was the venue of the annual outing of the Irish Gardeners' Association, and about forty members availed themselves of the hospitality of Messrs. Smith and Locke. Upon arrival, the party was conducted over the extensive nurseries, the inspection taking up the greater part of the day, with a break for luncheon kindly provided by the proprietors.

A National Park.—The Prime Minister has appointed a Committee to enquire into the subject of establishing a National Park, or National Parks, in Great Britain. The terms of reference are:—"To consider and report if it is desirable and feasible to establish one or more national parks in Great Britain, with a view to the preservation of natural characteristics, including flora and fauna, and to the improvement of recreational facilities for the people; and to advise generally, and, in particular, as to the areas, if any, that are most suitable for the purpose." The Committee is composed of the Rt. Hon. Christopher Addison, M.P., M.D. (Chairman), Mr. H. L. French (Ministry of

Agriculture and Fisheries); Mr. A. S. Gaye (Commissioner of Crown Lands); Mr. I. G. Gibbon (Ministry of Health); Sir Robert Greig, M.C. (Secretary to the Department of Agriculture for Scotland); Sir E. W. E. Holderness, Bart. (Home Office); Mr. F. J. E. Raby, F.S.A. (Office of Works); and Sir John Stirling-Maxwell, Bart., K.T. (Forestry Commissioner).

Survey of Soils and Fruits in the Wisbech Area.—The Ministry of Agriculture and Fisheries has recently published a monograph consisting of an account of the work and results obtained in the survey of the soils and fruits of the Wisbech Area, by C. Wright, M.A., N.D.H., and J. F. Ward, M.A. (Research Monograph No. 6; price 3s. 6d.). The Ministry hopes to publish, as they are completed, a series of similar surveys of the various fruit areas of this country, and the present volume is the first of the series. Three surveys have so far been completed—two in the East Anglian area and one in the west Midland area—and other surveys are in progress. The survey work is being supervised by the special Fruit Soils Survey Committee of the Advisory Chemists Conference. The present Monograph is divided into three parts:—Part I, Soils; Part II, Fruit; and Part III, The Relation Between Soil and Fruit; each subject being dealt with in every aspect. Appended are various tables of soil analyses; effects of soil on the size of Apple and Plum trees, stoutness of extension growth, and size of fruits, also on susceptibility of Apples and Plums, respectively, to Silver Leaf. Three maps are issued with the Monograph, and these show (1) the soil types; (2) the distribution of fruit trees in 1924; and (3) the distribution of Strawberries, in the Wisbech area.

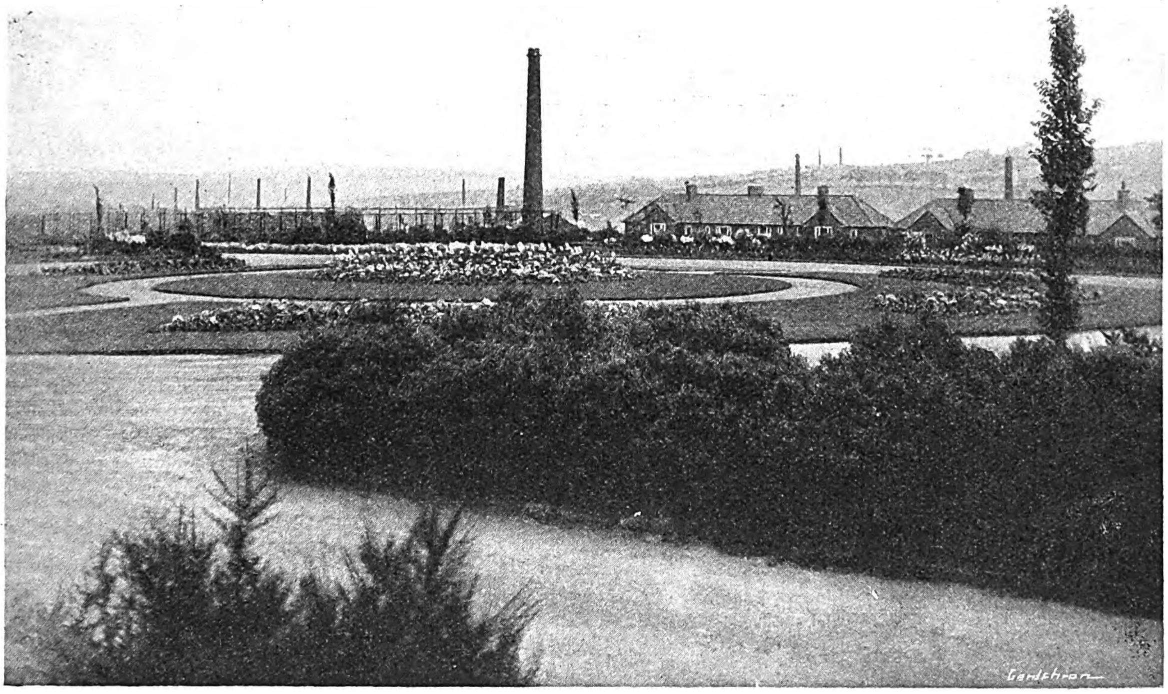

FIG. 125.—A VIEW IN ROE LEE PARK, BLACKBURN.

National Sweet Pea Society's Annual Meeting.—Unusual interest attaches to the Annual General Meeting of members of the National Sweet Pea Society, on Wednesday, October 16, as it will be the first one not held in London proper, although within the Metropolitan postal district. The meeting will commence at 3 p.m., and will be held in the dining room of Messrs. James Carter and Co.'s establishment at Raynes Park, London, S.W.20. In the same hall, the President, Mr. Harold Beale, will entertain the members to lunch at 12.30 p.m., and while the dining room is being made ready for the Annual Meeting, members will have an opportunity of inspecting the seed warehouses, offices and nursery. A proposed alteration of Rules will be considered by the members; if adopted it will mean that the Society's Gold Medal need not necessarily be awarded to the Sweet Pea which the Floral Committee considers the best at the Trials each year and, further, that if a Gold Medal is awarded, it shall not be provisional and dependent upon the conduct of the variety at the Trials in the following season. Yet another proposal aims at reducing the penalty imposed in respect of purity or trueness in varieties on Trial; the Rule reads "No Award of any kind shall be made to a variety that, at the Trials, contains a rogue or rogues." If the proposed alteration is adopted the reading will be "No Award of any kind will be made to a variety that, at the Trials, contains more than one plant rogue." Remembering the discussions that have taken place over the question of purity of novelties at the N.S.P.S. Trials, we do not anticipate an easy passage for the last-named proposal.

Ceanothus Burkwoodii.—Referring to the "very accurate account of our novelty, Ceanothus Burkwoodii, in *The Gardeners' Chronicle* of September 21," Messrs. Burkwood and Skipworth, Ltd., state that they have no desire to conceal the origin of this plant. It was raised by crossing the spring-flowering C. floribundus—from which it has derived the evergreen character—with C. Indigo.

Appointments for the Ensuing Week.—Monday, October 7: Derbyshire Horticultural Association's meeting; National Chrysanthemum Society's Floral Committee; Birmingham and Midland Counties Gardeners' Association's lecture. Tuesday, October 8: Royal Horticultural Society's Autumn Show (two days); Jersey Gardeners' Society's meeting. Wednesday, October 9: Wimbledon Gardeners' Society's meeting; Sheffield Chrysanthemum Society's lecture. Friday, October 11: Royal Horticultural and Arboricultural Society of Ireland's meeting. Saturday, October 12: Faversham Chrysanthemum Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Profits of Pear Growing.*—An observation of M. de Jonghe, in one of your late numbers, to the effect that England, from mismanagement, is tributary to Belgium for Pears, induces me to remark the high price at which this fruit is retailed in Covent Garden. I have seldom been able to purchase first-rate winter fruit, such as Winter Nelis, Beurré Rance, Easter Beurré, or Ne plus Meuris, under 6d. apiece, and never under 4d. Now let us suppose an acre stocked with pyramidal trees, at six feet apart, there is room for 1,210. In good condition, they surely ought to produce two dozen Pears each; but let us suppose that every other tree is absolutely barren every alternate year; the average will then be a dozen fruit per tree. Let us now assume that even of this dozen one-half is cracked, pecked, rotten, or otherwise unsaleable; there will remain half-a-dozen in good condition. Let us halve these again, and suppose that only three can be retailed at the full price of 6d., and that the other three will only produce 4d. each. We have thus 2s. 6d. per tree, or £152 per acre. What the retailer's profit is, I know not, but assuming him to be contented with fifty-two per cent., he will pay the grower £100. Now £100 an acre seems an enormous return, even after allowing that the trees, at 1s. 6d. each, must originally have cost £90, and that annual expenses such as rent, taxes and labour, have to be deducted. Hence we may conclude, either that Pear-growers are driving a most lucrative trade, or else that amateurs must not, on an average of years, expect a return from the pyramidal trees of even six good fruit from each. The culture of standards is usually considered more profitable than pyramids. If so, market gardeners, who almost always plant standards, will actually realise larger profits than those I have indicated above. *S. B., Bromley. Gard. Chron., October 7,* 1854.

Publications Received. — *Taschenatlas der Krankheiten des Beeren und Schalenobstes*; Von Prof. Dr. Otto Appel. Berlin SW11, Verlag Paul Parey, Hedemannstr. 28/29. Price Rm. 6.00.—*Le Nouveau Jardiniste Moderne*; Par Prosper Péan; Paris, Librairie de la Construction Moderne, 13, Rue de l'Odéon.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Cycnoches, Catasetums, Mormodes, etc.—These warm-house, deciduous Orchids, many of which produce flowers on completion of the season's growth, have grown well during the summer months, and the brilliant sunshine enjoyed during September has assisted the completion of the new pseudo-bulbs on many of them. Those that are developing flower scapes should be given sufficient moisture at the roots to keep the flower buds growing until fully expanded. At this season, the plants should be grown in a light position, where they are exposed to all available sunshine, with a good circulation of fresh air, to assist the pseudo-bulbs to ripen, and as growth becomes complete and the leaves turn colour, water should be withheld gradually. When the leaves have fallen the plants should be allowed to rest in a light position near the glass, where the air can circulate around them, and an intermediate temperature maintained until signs of activity are noticed in the spring. During the resting period no water will be required, unless the leading pseudo-bulbs appear to be shrivelling, when one good application will generally suffice to plump up the pseudo-bulbs to a normal condition again. Much depends on the proper ripening of the pseudo-bulbs at this season if they are to pass successfully through the dull winter months, especially in smoky districts where the light is so deficient during winter fogs. The pseudo-bulbs should be examined carefully for the presence of small scale insects which, if found, should be removed with the aid of a small brush and a safe insecticide, care being taken to avoid any injury to the eyes or growing points.

Cypripediums.—Specimens of the autumn- and winter-flowering Cypripediums form a leading feature in many collections to-day, as they are comparatively easy to grow and give a return of flowers which keep in perfection for many weeks during the dull period of the year. The varieties are too numerous to enumerate, being sufficient in number to meet the most exacting tastes. The early-flowering sorts, embracing both species and hybrids, especially those derived from the dainty C. Fairrieanum, C. Charlesworthii, and others, are now producing flower buds. Root action is very active at this stage, and the plants should be given copious supplies of water at the roots each time the soil appears dry. Neglect of this point at this stage often results in deformed flowers and sickly-looking plants. The flower stems should be secured loosely to neat stakes, before the stems become twisted through being confined in the foliage. Later, as the blooms expand, the stems may be secured so as to show the flowers to the best advantage. Plenty of light should be allowed to reach the plants, with a reasonable amount of fresh air on all favourable occasions, in order to secure a good texture in the leaves and develop substance and colour in the blooms. Very little shade during the hottest part of the day will now be needed, and as the sunlight declines this should be dispensed with altogether until the early spring months. Thrips and other insect pests should be kept in check by an occasional fumigation on quiet evenings, and the foliage cleaned by sponging with soapy water to remove the dirt which enters owing to the extra ventilation, especially in smoky districts.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Storing Pears.—Pears are very much more difficult to manage in store than are Apples. They mature so suddenly, and at times so unexpectedly, that the fruit-grower has to be on the alert all the time. In the fruit room he may go through the lot one morning and find everything correct, while the next, or two days later, on entering the store he may be made suddenly aware of that most wonderful aroma—the aroma of a few ripening Pears ; so that they call for the very closest attention the whole season through. The late-keeping varieties, such as Olivier de Serres, Glou Morceau, Beurré Alexandre Lucas, Beurré Rance, Beurré Easter, and Joséphine de Malines, should be allowed to hang on the trees right up to the last week in October, if necessary, to prevent shrivelling in store so much as possible. Unlike Apples, they like warmer and drier conditions, with complete darkness. To allow for frequent inspection, they should be laid out in single layers. The shelves should first be covered with a thin layer of wood-wool to prevent bruising and to allow the air to circulate under and among the fruits. Where Apples and Pears must, of necessity, be stored in the same room, the upper shelves should be reserved for the dessert Pears, because the air there is generally drier and warmer ; the centre shelves for the mid-season Apples, while the lower shelves or floor space should prove most suitable for the late-maturing Apples and stewing Pears.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Chrysanthemums.—In view of the long period during which the Chrysanthemum is expected to provide flowers, the late varieties are best kept out-of-doors for some time to come, but as frosts may be expected after this date, it will be wise to make some provision for protection. A good plan is to have a skeleton frame prepared and fitted with blinds that may be drawn over the Chrysanthemums at night when frost is expected. Mildew is liable to attack Chrysanthemums at this season, and means should be taken to check this ; there are many good proprietary mixtures obtainable, and if used according to directions, this troublesome disease may be kept in check. Plants that have been grown to produce large blooms should have been housed by this date ; if mildew makes its appearance on these, it is best to dust the leaves with flowers of sulphur. During dull days a little fire-heat may be necessary to dispel dampness and keep the atmosphere buoyant, but never allow the roots to suffer through lack of water once the flowers are opening, otherwise damping-off of the petals may follow.

Begonia Gloire de Lorraine.—Plants of this Begonia should be kept growing in an intermediate temperature, but with less shade than was given during the summer months, and where possible, more room should be allowed them so that the plants may develop their flowers equally all round. Some of the earlier plants may now be allowed to flower, while others should have their flowers removed to enable them to provide a succession to those that flower from now onwards. The variety Mrs. Peterson is generally much later in forming a good plant, and by removing the flower buds that do appear, good flowering specimens may be secured for the early part of January next year. While these Begonias require some care when applying water to the roots, they should never be allowed to suffer through lack of moisture. Well-rooted specimens should be afforded applications of a light stimulant alternately with clear water ; weak soot-water tends to give the foliage a dark green appearance, and also assists the production of flowers of good quality. The plants should be neatly staked to prevent them from bending down with the weight of their flowers.

Cyclamens.—Where a large number of these are cultivated, some of the earlier plants may be placed in a lean-to house, for preference near the roof glass, and their flowers allowed to develop as they appear. A minimum temperature of 50° should be maintained. Plants that are now producing their flower stems require a little extra care when applying water to the roots, and at no time should moisture be allowed to lodge in the crown of the plant, otherwise the flower stalks may damp off. If the receptacles are well filled with roots, the plants should benefit by light applications of liquid manure, and if a concentrated fertiliser is used, care should be taken that it does not come into contact with the centre of the crown. Freedom from insect pests is most essential and as a preventive the plants should be fumigated with XL All insecticide on two or three occasions. This should free them from aphis and check the spread of mites should any be present.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Figs.—Fruits on Fig trees under glass should now be finished, and the trees in pots or borders resting. There is nothing gained by allowing second crops in late houses and third crops in early ones, to swell, as what they gain now they will lose later, for half-rested trees will commence casting their fruits when they should be swelling to maturity. If the autumn continues fine and dry, the pot trees may be kept near the foot of a wall until the house or pit is ready for them. As Figs are very subject to red spider, bug and scale, they should be washed carefully, and dressed with Gishurst compound, and the house well cleansed with hot water, quick-lime and sulphur before the trees are taken in again. Sudden and severe autumn frosts do them no good, therefore the houses should be got ready for their reception, and any fermenting material, consisting principally of Oak leaves and a small percentage of fresh stable litter, prepared in readiness for starting by the end of November or early December. Pot Figs, under good management, improve with age ; once started into growth, the balls of roots should never become dry until all the fruits are gathered. When this stage is reached and the pots are removed from the plunging material, all external roots may be cut off and the trees repotted, or large trees may be kept in pots of the same size for years, as the annual roots support the crop, always provided the roots never suffer through lack of water.

Cherries.—The past month has been rather too hot for trained trees under fixed roofs, especially if red spider injured the leaves early in the season. Too much late, direct syringing only aggravates the evil, as the moisture so provided only induces the leafless buds to swell. As much air as possible should be admitted, both night and day, and shading from bright sun may be resorted to, but the best of all supplementary checks will be found in shortening the strong roots. Where roof lights can be removed, the trees may be kept dormant by full exposure and night dew, while artificial watering or rain may keep the roots wet enough. Trees in pots now plunged outside will have had the benefit of cool nights and, provided the foliage is still hanging, the buds should now be safe. A mass of roots being essential to success, water should be given in sufficient quantity to prevent an unduly dry condition at the roots.

Plums.—The preceding remarks are also applicable to early and midseason Plums, which cannot be kept too cool. A good washing with the hose will keep any late attacks of green or black fly in check. The fruits on pot trees of Golden Drop, the king of dessert Plums, should now be in perfect condition, and are worthy of the greatest care ; protection from wasps and flies and a free circulation of dry air is imperative. This variety is not, as a rule very prolific, but makes up for that by carrying a fair crop every year. As the fruits improve in quality and value after they are ripe, the roots of the trees should be kept moderately moist and well covered to prevent drying out.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Paeonies.—Among herbaceous plants that may with advantage be planted during early October are the beautiful Paeonies, which rank among the best of our hardy plants, for they combine delightful form with lovely colours, and in some varieties the blooms are pleasantly fragrant. The season of flowering can be considerably prolonged by planting the early-flowering, European varieties, to be followed by the Chinese sorts later. In most gardens there is a partly shaded border in which Paeonies may be grown with advantage. In such a position they make luxuriant growth, and the colours of the flowers are better, besides lasting much longer, than when in an open, sunny position. They are such good plants that it is not advisable to mix them with other subjects in the ordinary herbaceous border, for they are worthy of a site apart, where they can remain undisturbed for several years. In such positions groups of Liliums planted here and there between the clumps will help to prolong the flowering season of the border and do no harm to the Paeonies. The edges of drives or paths in the pleasure grounds, where they may receive shade from the surrounding trees, also provide admirable sites for groups of these handsome plants. Yet another use can be made of them *i.e.*, for furnishing the wild garden, where, if planted judiciously, they will produce a telling effect. When preparing a position for these Paeonies, bear in mind that they ought to remain undisturbed for years if the best results are to be obtained. The soil for them should be deeply trenched—two-and-a-half feet is none too deep —and a plentiful supply of well-decayed cow manure incorporated as the work proceeds. See that the ground is sweet and well drained, for Paeonies relish a moist, rich soil, but resent anything in the way of stagnant moisture; also, be sure that the site is not subject to late spring frosts, which will damage the tender young growths and buds. Allow the ground to settle before planting. Place the clumps three feet apart each way, doing as little damage as possible to the fleshy roots. It is not to be expected that there will be much bloom the first year after planting, but if the work has been done carefully and good plants used, from the second year after transplanting a plentiful supply of good flowers will be the reward for a number of years. When the borders or groups are well established an annual top-dressing of well-decayed manure during the growing season should be beneficial; also waterings with weak liquid manure when the clumps are covered with their flower buds.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Cardoons.—These should now receive their final earthing-up. Build up plenty of soil around the plants, but before doing this clear away any small leaves at the base of the stems; tie them up with one or two strands of Raffia sufficiently loosely to allow for further swelling, as the plants fill out rapidly at this time of year.

Seakale.—Remove any decayed leaves from the plants. Stir the soil between the rows with the hoe, and keep the bed free from weeds.

Winter Salads.—Attend to the batches of Lettuces in frames; keep the soil well stirred, and give a light dusting of soot around the plants to keep slugs in check. Mustard and Cress should now be sown in boxes in a warm house; batches may be sown every ten days to maintain a continuous supply.

Jerusalem Artichokes.—These have grown to a fair height this season, and the growths may be cut back two feet or more to encourage the swelling of the tubers and prevent the growths being blown about by strong winds; it will also let more light and air reach the base of the plants.

Tomatos.—Shorten most of the leaves on these so as to allow the sun to ripen the fruits, and give an application of liquid manure to assist the fruits in swelling. Should frost occur, pull the plants up and hang them in a warm dry, airy house so that the remaining fruits may ripen.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Root-pruning.—No time is better suited for this work than the present, and in most gardens a few trees require to be taken in hand each year. Where growth is over-luxuriant and cropping poor, little good follows the annual removal of top growths, but a reduction of the rooting system soon puts matters right, and if done while the leaves are still on the trees, root action begins at once, instead of being deferred until spring. Young trees on reducing stocks, both Apples and Pears, and all stone fruits, should be root-pruned frequently until they settle down to bear regularly, and occasionally even after this. If half the roots are treated at a time, the remainder being left undisturbed until the following year, no serious check will result. All strong, gross roots should be cut back close to the ball, cutting them with a sharp knife on the upper side, so that the roots emitted have an upward tendency. A quantity of new soil, preferably virgin loam full of fibre, placed around the roots and made quite firm, should prove beneficial, but no manure of any kind should be mixed with it, although a mulch of partly decayed farmyard manure on the surface or just under it, will raise the temperature of the soil at the time, and so accelerate the production of new roots, and encourage the upward growth of the roots, which is most desirable. Old-established fruit trees of all kinds which have got out of condition can soon be restored to fruiting, if in a healthy state, by root-pruning, but if canker or gumming is in evidence, they are not worth the labour. Attack the roots in the first place, and afterwards the branches, removing a few each year until in time a practically new tree is produced. In the case of stone fruits, young wood gives the best and largest crops, but in the case of Apples and Pears the existing branches may be retained if desired, cutting away the old spurs gradually. Considerable care and judgment should be exercised in treating the roots of old trees; if thick and heavy; the severing of one at a time may be sufficient, and this should be done with a saw, smoothing the wound over with a sharp knife. Roots penetrating deeply into the ground should be dealt with first as they are most likely to be the miscreants.

Peaches.—So soon as the last fruits are gathered on outdoor trees, the old wood should be removed, leaving only sufficient to clothe the wall, so that no winter pruning will be necessary; extra light and air will also be admitted to the young growths on which next season's crop will be produced. If the soil around the trees is forked over and a good mulch of rich manure, or a watering with liquid manure, is given, it will do much to build up the buds before the leaves fall.

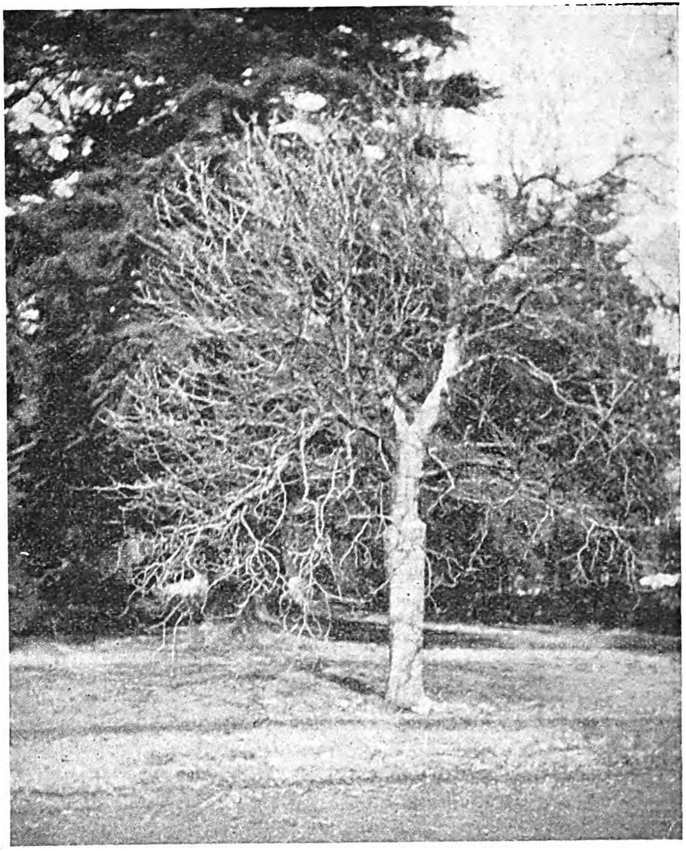

FIG. 126.—AESCULUS CALIFORNICA.
(see p. 263.)

Roses.—Where dwarf Roses, especially H.P.'s, have made strong, woody growths, these should be shortened almost to one half their length to prevent breakage by wind. If black spot or rust has been prevalent, the leaves should be carefully collected and burned at once to destroy the resting spores, after which the bushes should be sprayed with a good fungicide.

Brussels Sprouts.—The lower leaves, at least half way up, should be removed to allow a better circulation of air to develop the sprouts or they may be of poor quality and liable to decay in wet weather. In the case of Cabbages, Broccoli and Asparagus Kale, only decaying leaves should be removed to expose the stems as much as possible so that they may become firm in texture before frosts set in, or much damage may result from stem-splitting, especially among Broccoli.

INDOOR PLANTS.

DATURA SUAVEOLENS.

Datura suaveolens, often called Brugmansia suaveolens, belongs to the Natural Order Solanaceae, and was introduced from Mexico to this country in 1733.

The pure white blooms are trumpet shaped and often over five inches in diameter. They are seen to their greatest advantage at night, for they are then fully open, and the rich perfume permeates the atmosphere around, while during the day the blossoms are closed somewhat.

This gorgeous, freely-flowering Datura seems to bear its blooms in crops during August and September, the flowers remaining on the plant for practically a whole week before turning brown and falling off. The large, elliptical-oblong leaves are perfectly entire, the upper surface glabrous, the lower sparsely hairy.

When grown in a cool corridor or such like place, where it has plenty of "head room," it attains a height of ten to fifteen feet. Propagation may be effected by means of cuttings taken and rooted in sand during spring.

When the mature plants lose their leaves in autumn, water should be withheld from them to some extent, as the wood, being of a soft, fleshy nature, is very liable to decay. It appears to grow and flower more freely in a shady position than in one where it is subjected to the full rays of the sun. D. Knightii is a double-flowered variety of this species. *F. H. Wright, University Botanic Gardens, Cambridge.*

IMPATIENS SULTANI.

The Balsam family contains many excellent decorative plants, but none can surpass in elegance of habit, freedom of flowering and general usefulness this plant, named in honour of the Sultan of Zanzibar. It is stated to have originated as a chance seedling in the compost of an importation of other plants from Zanzibar in 1883.

The flowers of this charming plant can be enjoyed during the whole year with the aid of a cool greenhouse, while its value as a bedding plant during the summer months is well-known; its beautiful, bright rose flowers, so abundantly produced, create masses of delicate colour. It is particularly useful as a pot plant for room decoration, excellent for furnishing the conservatory at all times of the year, and makes a splendid hanging basket plant during the summer.

Impatiens Sultani is easily raised from seeds, while cuttings placed under a bell-glass strike very freely at almost any season; it grows vigorously in any sweet compost, and is relatively free from the attacks of pests and diseases. *W. A.*

XANTHOSOMA LINDENI.

Xanthosoma Lindeni, the most generally cultivated species of the genus, is an old garden plant, having been introduced from New Grenada some seven years later than Xanthosoma violaceum, which, after being cultivated in plant stoves for upwards of sixty-five years, received an Award of Merit at a recent meeting of the Royal Horticultural Society.

In common with many other tropical Aroids, the spathes of X. Lindeni are somewhat dingy and unattractive, but when well grown, its hastate leaves, one foot in length, held well aloft on strong, tapering petioles, with wide, silvery bands margining the median and branching veins running herring-bone fashion on the deep green upper surface, are distinctly ornamental.

Plants of a useful decorative size, from fifteen to eighteen inches high, may be grown in five-inch pots, and larger specimens of several plants, in correspondingly larger receptacles. In addition to the type, there is a variety similar in character but with much larger leaves, by name, X. L. var. magnificum. It is also known as Phyllotaenium Lindeni var. magnificum.

This Xanthosoma may be increased by division of the tuberous rhizomes in early spring, before active growth commences, when the plants should be overhauled, the drainage examined, dead roots removed, and sour soil replaced with fresh, sweet compost. The plants should be grown in a brisk, moist heat, to encourage a healthy and rapid growth. *Jonathan Fiona.*

ALPINE GARDEN.

SEDUM MONREGALENSE.

This is by no means a common Sedum in gardens or nurseries, but it is one whose merits thoroughly deserve a wider recognition, for it is not only reliable in the production of blooms and a bright and cheerful little plant, but it is one of the few Sedums which appreciate a cool and sunless situation.

S. monregalense is a lowly, creeping perennial species, the slender, decumbent stems rooting as growth proceeds. These stems are closely furnished with fleshy, blunt, oblanceolate leaves, usually in whorls of four, and of a pale yellowish-green. Rising to three or more inches above the mat of foliage, the flowering stems break into a panicled cyme and bear at their extremities comparatively large, pure-white, star-shaped blossoms. These blooms are not only produced in great abundance, but a succession is maintained throughout the later summer and often well into autumn. Although a native of the warmer parts of south-eastern Europe, S. monregalense is absolutely hardy. It appears to thrive in any average loam that is gritty and freely drained, but to do really well a damp spot with shelter from the hottest sun is desirable. *J.*

ANDROSACE LANUGINOSA.

It may appear almost superfluous to write about that lovely Androsace, A. lanuginosa, so well known is it to most growers of rock plants and so frequently seen in gardens. Yet one finds apparently that even really lovely old plants may be overlooked in purchasing additions to the garden, especially when we have so many new treasures at our doors clamouring for admission, whose claims are not to be ignored, and whose beauties are undeniable, although not always superior to those of our older plants. And among the numerous plants of grace or beauty the Androsaces are in the first rank and, although the assertion may be criticised, I do not think that any one of the species can cast A. lanuginosa in the shade, so lovely and so delightful is it. Farrer did not exceed the truth when he characterised A. lanuginosa in the *English Rock Garden* as "among our most precious and universal rock garden ornaments."

It is a joy to see its long, trailing shoots clad with their silvery, silken leaves and bedecked with their many Verbena-like heads of finest rose-lilac. The variety A. l. var. Leichtlinii has white flowers, with an eye of crimson or yellow, and is very beautiful also, although after the lapse of a few years after its introduction one came to the conclusion that the typical lilac-rose plant is the more beautiful of the two.

Happily, too, the culture of these gems is not beyond the skill of the many who own rock gardens. A sandy soil and a sunny situation answers well for A. lanuginosa, which is perfectly hardy. It also does well in a sunny moraine. In either the rock garden or the moraine it will bloom for months in succession and last in flower until after the early frosts have cut down many other flowers.

In very wet climates A. lanuginosa survives better if sheltered from winter rains by a sheet of glass, but this is not absolutely necessary. Propagation is effected by cuttings or seeds.

LINARIA ANTICARIA.

Upwards of five and twenty years ago, at a time when I was endeavouring to make myself acquainted with a number of little-known flowers, I purchased a packet of seeds of Linaria anticaria, sold as an "annual Toadflax," and recommended for the rock garden. It proved to be a pretty, although not showy, species, about three or four inches high, and I was intrigued into studying its variations, which were very considerable, especially in the ground colour, which was generally yellow, buff or greyish. The throats were brown, yellow, reddish and white, as a rule, but I took a note of the variations, which I believe I have somewhere among my horticultural notes. It will, I have no doubt, be thought that this was not worth while, but it was interesting to me at the time.

L. anticaria is best treated as an annual, but in the garden I then had, close to the sea, plants frequently survived the winter, while self-sown seedlings maintained the succession for some years. On leaving this garden, I took no plants of L. anticaria with me, and had not grown it for many years, until in 1928, a plant of L. anticaria made its appearance on a retaining wall along with other alpines. This flowered, and this summer several self-sown seedlings made their appearance, and will probably furnish me with plants in the future. I am writing this to bring L. anticaria to the notice of readers interested in rock plants, and who wish for a few annuals suitable for the rock garden, which would not be too aggressive and would come in well where early bulbs are grown.

L. anticaria is only about three or four inches high, has narrow leaves and small flowers of the ground colour indicated above and prettily marked on the lip. It is best treated as a hardy annual, and either sown where it is to bloom, above early bulbs, or allowed to seed itself among other plants. It is not a greedy plant in the way of soil, and is hardly capable of doing harm to its neighbours, however choice. *S. Arnott.*

FLOWER GARDEN.

COSMOS BIPINNATUS.

About the beginning of this century, many people had difficulty in getting this annual to flower in their gardens before it was cut down by frost. Gardeners who made experiments recommended it to be raised in heat, and transplanted twice, before being finally planted in the garden. The treatment was intended to check its vigour and induce early flowering. This is altogether unnecessary if seeds are sown in light or sandy soils. It is practically a weed in many gardens on sandy, alluvial soils of the Thames valley, west of London, and may be so elsewhere.

Although this Mexican plant is cut down by the first sharp frost, like Dahlias, it ripens and scatters seeds abundantly before the advent of frost. Seedlings spring up in the gardens, and appear in other gardens where none were planted, just as Impatiens Roylei does, although the means of transit must be different to some extent in the two cases. The walls of the fruit of Impatiens are elastic, and throw the seeds to a distance at maturity. The achenes or fruits of the above Cosmos are of two forms. The outer ones have a short neck furnished with hooks or stout, reversed hairs. The inner ones have long necks without hooks; sometimes these are fertile and sometimes they contain no seeds, as if the disc flowers had a tendency to become male only. Those with hooks are liable to be distributed by various small animals that frequent gardens. *J. F.*

NOLANA ATRIPLICIFOLIA VAR. GRANDIFLORA.

It seems very strange that this hardy annual is not very well known, as most people nowadays would welcome the tone of blue exhibited by this lovely plant, and the shade might be likened to that of the flowers of that favourite wall plant, Ceanothus Gloire de Versailles. Yet the blue is not the only colour which the Convolvulus-shaped flowers of this plant possess, as each bloom, when fully opened, shows a zone of lemon, white and blue, the lemon being lowermost, the white in the centre, and the blue uppermost. Several stems are produced by each plant, and on these are borne the successional flowers.

The blooms—which measure one-and-a-half inch in diameter—open and close daily, and each lasts in good condition for two days, afterwards the pedicels, which vary in length from one inch to two inches, bend downwards. The plaited corollas, too, are also interesting.

A sunny position should be chosen for N. a. var. grandiflora, and the seeds should be sown thinly in any good soil, in April or May, when the plants will flower in August. *D. A., Midlothian.*

TREES AND SHRUBS.

TWO INTERESTING TREES.

Having come across two very interesting trees in the grounds at the Manor House, Stanmore, where Mr. Samuel Wallrock has been so busy during the past three or four years planning and designing his charming gardens, which lie on the fringe of the ever-advancing Metropolis, I made notes of them. The two trees, an Ash and an Aesculus, caught my eye in a moment, when visiting the Manor House, in spring and recognising that they would probably interest tree lovers who con the pages of *The Gardeners' Chronicle*, I was fortunate in obtaining the photographs sent herewith.

The Ash, a variety of Fraxinus excelsior, is one of the most strikingly contorted trees that I have ever seen. These contortions are distinctly shown in the photograph (Fig. 127), and although many folk might probably regard it as monstrous, a second glance at the illustration will discover that the tree is quite handsome, pleasing, and of semi-pendulous habit.

Aesculus californica, the Californian Buckeye, belongs to the section of this genus at one time named Pavia; it is indigenous to the American continent, and the picture (Fig. 126) being taken when the tree was out of leaf, shows the junction where it was originally grafted, the stock having made greater growth than the scion, a happening that is too frequently reversed to the detriment of the latter. As an isolated specimen tree, of small dimensions, this is an admirable example, and I was told that it flowered and fruited freely last season. *E. Beckett.*

LONICERA MAACKII.

The shrubby Honeysuckles are somewhat overshadowed by their climbing congeners and are, perhaps, not so generally grown as they, for the most part, well deserve to be.

L. Maackii is a much-branched shrub, attaining a height of eight to ten feet, the spreading branches being well furnished with ovate, elliptic leaves, in the axils of which are clusters of white, trumpet-shaped flowers. Of rapid growth, this really fine Honeysuckle makes an attractive, bushy specimen, or may be grouped to advantage in the shrub border; its flowers are of appreciable size and sufficiently numerous to create a most attractive feature. L. Maackii was, I think, introduced by the late firm of Messrs. J. Veitch and Sons several years ago, when it received an Award of Merit from the R.H.S.

Other shrubby and deciduous Loniceras not often grown and yet of considerable merit are L. chrysantha, L. involucrata, L. Ledebourii, L. Ruprechtiana and L. Standishii. *Ralph E. Arnold.*

ERIOBOTRYA JAPONICA.

The Loquat, or Japanese Medlar, is a native of China and Japan, and belongs to the Natural Order Rosaceae. It forms a handsome tree from ten to twenty feet in height; the greyish-white flowers are produced in pendulous racemes and are very fragrant. The leaves are oblong, rugose, glabrous above and pubescent beneath. The small, ovoid fruits are orange-yellow and about the size of Crab-Apples, they have a slightly acid flavour, and are excellent for stewing or for preserves.

Eriobotrya japonica thrives in most sub-tropical countries, and it is largely cultivated in France, where considerable quantities of fruits are gathered annually and sold in the markets. In the west of England it is grown as a flowering shrub, for which it is well adapted.

At Maxwell's Hill, Malaya, several trees have been established at an altitude of 4,000 feet and several fruits have been produced.

Plants may be propagated from seeds, but budding or grafting may also be successfully effected. *F. S. Banfield, F.L.S., Perak.*

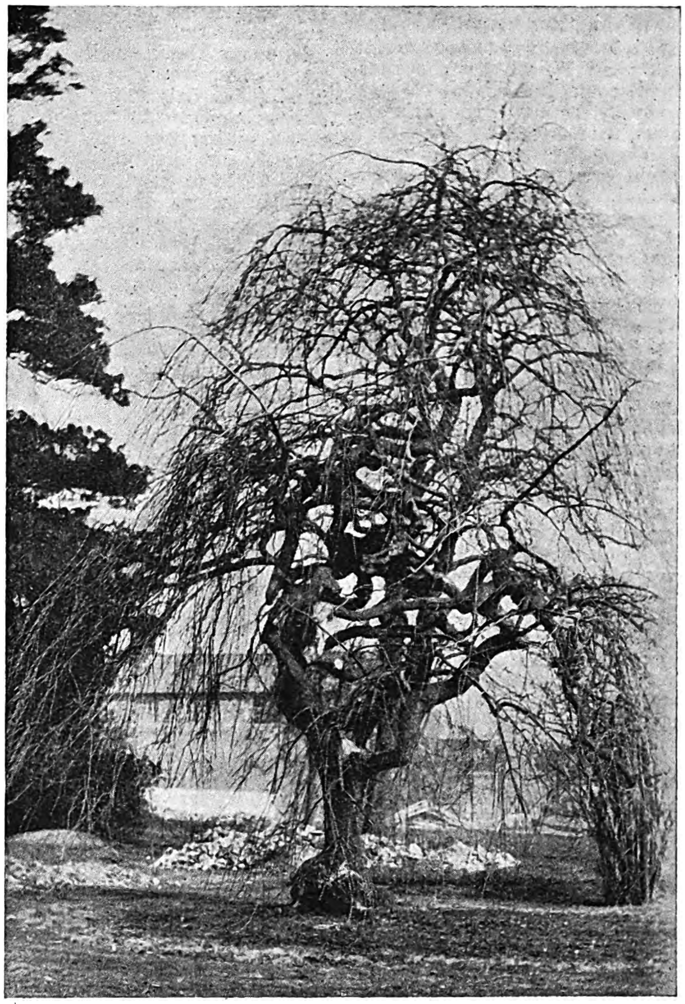

FIG. 127.—A CONTORTED SPECIMEN OF FRAXINUS EXCELSIOR AT MANOR HOUSE, STANMORE.

EXPERIMENTS IN PROPAGATION.

I would here like to put on record some experiments in propagation which, although probably not new to many readers, show ways which are by no means common. It is usual for gardening writers to emphasise the importance, and it is almost insisted on as indispensable, of cutting the shoot chosen for a cutting just below a joint. As I found that this practice usually gave very good results, I have made it the mainstay of my propagating practice, but being of an enquiring turn of mind, I have often made experiments of other methods, and have now arrived at the conclusion that there is not a universal necessity to trim the cutting in this way. In some cases, I am of opinion that this kind of trimming is not only unnecessary, and occupies more time, but that cuttings cut as "internodal" cuttings root more freely and quickly than those trimmed just below a joint. Whether this can be applied to most of the plants which are propagated from cuttings can only be known by experiment. Experiment on an extensive scale is not open to a gardener in private practice, for want of opportunity, of time, and sometimes because his stock of plants is limited and he cannot gamble with it when he is sure of success by the older method.

Some of the plants which I have propagated by internodal cuttings with success are Verbenas, including V. venosa, Nepeta Mussinii, Diplacus (Mimulus) glutinosus, Heliotrope, Antirrhinums, Nasturtiums, Tomatos, Calceolaria amplexicaulis, Fuchsias, Cerastium, Hydrangea hortensis, Tree Lupin, Rose (in spring), border Chrysanthemums, Lobelia, Ageratum, Pansies, Aubrietia, Petunia and Ivy-leaved Pelargoniums, and I am quite convinced that there are innumerable other plants which could be added to this list.

It may reasonably be asked what advantage there is in this method. The reply is that it is simpler and entails less time in preparing the cuttings. In the usual way, pieces are cut from the plants and are then cut below a joint, and as most of them have two leaves near the lowest joint, these have to be trimmed off, making three operations with the knife. Now, with internodal cuttings, one cut only suffices, if that cut is made almost immediately above the joint, as there will be in most cases sufficient length of stem for burial in the propagating compost without cutting away any more leaves. For nearly all cuttings treated in this way, I do not use a knife at all, but merely a pair of pocket scissors.

In nearly every case I use pure sand for propagation, and here, again, there is considerable saving in time. A layer of leaves or some similar material is placed in the bottom of the propagator, and covered with about three inches of sand. I have in several places used local sand, procured from a builder, but I always like it to be rather coarse. This I pass through a fine-mesh sieve to eliminate stones and other foreign matter, and after levelling the surface I give it a thorough watering, with a rose on the water-can, making sure that all the sand is saturated. I insert the cuttings at once. Those which have a stem sufficiently stiff, I press into the wet sand, but where the stem has not sufficient firmness for this, I make a place for its reception with the blade of a small penknife, put in the cutting, and then press back the sand so as to hold the cutting erect. There is no need for the old advice to use a blunt-ended dibber, or to make sure that the propagating material is pressed so firmly against the stem of the cutting that an attempt to withdraw it by one of its leaves would leave a portion of the leaf between finger and thumb. This was at one time a test of proper insertion of cuttings. After all the cuttings are inserted, I get the sand close up against the stems of the cuttings and ensure that there is no air cavity below, by simply watering again with the rose on the can until the sand is washed against the stem and there is no space around the cutting. The propagator for such cuttings need not be an elaborate one. It need only be a deep box set over the hot-water pipes, but not in close contact with them. I find that loose sheets of glass are better as a covering than a hinged light. With a hinged cover you have to wipe off the inner coating of moisture, whereas when loose sheets of glass are used all that is necessary is to reverse them about twice a day, and the moisture which has collected on the inner surface will evaporate when exposed to the atmosphere of the plant house.

I might here give a few instances of successful propagation. Last year, I had the idea that the heavy soil here would not ensure Nepeta Mussinii keeping well through the winter, and as I had planned for a considerable number of these plants, I thought it better to pot up a few plants to hold over the winter as stock for spring propagation. I took up two plants, which were each potted into a five-inch pot. In the early part of the year, I put these into a warm greenhouse, and when young growths were available these were snipped off with the scissors and rooted in the propagator made in the manner already explained. By thus rooting the cuttings as they came along, boxing them up when rooted, and later taking off the tops of the rooted cuttings, I was able from these two plants to secure 718 plants, all of which did well and made large flowering plants during the summer. All the cuttings were internodal ones. The stock could easily have been increased still further had there been the need. Another example of express propagation, which may interest readers, was with the herbaceous Phlox. I obtained during the last week in December, 1927, three pieces of Phlox, variety Elizabeth Campbell, each of which just covered the palm of the hand. I wanted to get a stock from these, so put them in a vinery to induce them to produce growths which might be used as cuttings. This they very soon did, and these, as fast as they came along, were rooted as internodal cuttings. So successful was the propagation that I was able during April to set out 299 plants, by far the majority of which flowered in 1928. During the past spring, I tried the plan again, potting up twelve plants in six-inch pots. I did not here require a very large quantity, but I have now from these twelve stock plants over 150 plants, all of which have had good heads of flowers. At one time, when the variety of Pelargonium named Paul Crampel was not so common as at present, I had a stock of twenty-five plants dug up from the beds in the autumn, and wished to work up a large stock for planting in the following spring. I took them into a warm greenhouse, and so soon as any of the growths was an inch or two long, I used them as cuttings, with the result that by the following May I was able to plant out nearly five hundred plants.

I suppose that the practice of working up a stock of Antirrhinums by taking cuttings in the spring is not a usual one, but at one time I was faced with the difficulty of wanting more Antirrhinums than I had pricked off. This was about the beginning of April. It was rather late then to sow seeds with any hope of the plants flowering until late in the summer, but I tried snipping off the tops of the seedlings which were raised from seeds sown in January, and as these rooted in a little over a week, I took off the tops of all the plants I had and rooted over ninety per cent. of them. They made good plants and flowered only a week later than those from which they were taken, and later in the season it would have been impossible for anyone to state which were seedlings and which were from cuttings. I also adopted this plan extensively this year with quite satisfactory results. It applies also to Petunias, Verbenas, Aubrietias and Pansies. All these were increased by internodal cuttings, with the exception of Pelargonium Paul Crampel.

Another interesting trial was with Tomatos. It was on April 30, a few years ago, that I was taking out the side growths from Tomato plants, and thought that I would ascertain whether these growths would root, and if so, whether they would make good fruiting plants. The shoots were rubbed off with the finger and thumb in the usual manner, and to make surer of their rooting, I made a clean cut at the bottom of each piece (these were little more than an inch long). I dibbled them into the sand propagating bed, and in exactly a week I was able to remove them and put them into small pots. They were grown on in the usual manner and fruited well, producing fruits quite close to the base of the plants.

It is known to most Sweet Pea growers that cuttings may be taken of these, although my experience is that the resulting plants are not so strong as seedlings. When I have tried them, I have usually made use of the pieces removed when taking out the tops of the plants in winter or early spring, but on another occasion I am going to try cuttings of some of the growths which spring from the base of the seedlings after the pinching has been done, as I think that they would make stronger plants. I have four circular groups of Sweet Peas from cuttings this year, and anyone who did not know how they were obtained would find it difficult to state with any certainty which groups were from cuttings and which from seeds. The plants from cuttings started to flower a little sooner than the plants from which they were taken. I do not recommend this practice as a general rule, but it may be useful to know of the method should there be a loss of plants in the spring from any cause.

Although I have spent over thirty years gardening, I have never yet seen anyone propagate rambler Roses in the same manner as is usual with Loganberries, that is, by layering the tips of growths of the current year. I was at one time engaged in this interesting method of propagating Loganberries, and when going to a meal, I passed some rambler Roses. It then struck me that the habit of growth of the Loganberry and the rambler Rose was very similar, and perhaps the same method of propagating them might be adopted. I tried a few and waited anxiously for three weeks, when my curiosity would brook no further delay, so I examined the growths, to find to my joy that roots were being formed. I then layered fifty growths of a rambler which, if my memory serves me correctly, was The Garland, and in about eight weeks I was able to remove them from the parent plant, for each of them had rooted, and had started to throw up young growths.

I wonder whether any other gardener has tried rooting the leaves of Carnations. I noticed on one occasion that a leaf which had been partly broken from a perpetual-flowering Carnation of the variety Britannia, had started to "callus." I removed it, put it in the propagator, and in a short time I was delighted to find that several roots had formed. I potted it up, but although it made a much larger root-system, there was never a suspicion of any growth from it, nor was I able to get any other leaves to grow, although most of them formed quite a number of roots. I do not see that there would have been any advantage in this method of propagation, even if it had proved possible to raise a growing plant in this way, but one likes to make these trials, even if they come to nought.

A few years ago, I was able, with internodal cuttings, to work up a large stock of Heliotrope from a comparatively few cuttings. I wanted to fill several large beds with the variety Lord Roberts, and was able during February to get one hundred cuttings. These I rooted in the sand propagator, and when they were rooted, I boxed them up. In rather more than a week I cut off the tops with scissors and put these also in sand. I continued this method until the end of April, when I finished propagation, but was able early in June to set out 1,200 plants from three-inch pots. *William F. Rowles, Sussex.*

WOODLAND GARDEN.

CORNUS CANADENSIS.

As autumn approaches we look for the entry of the pretty Cornus canadensis into greater prominence than it secured earlier in the season. It is still producing its tiny, inconspicuous flowers surrounded by broad white bracts, and its leaves are beginning to assume the brilliant tints which constitute perhaps the greatest charm of this little plant. It loves the shade and rather peaty soil, but is not so particular regarding the latter as is imagined, and grows very well in loam and sand. But it should have a fair amount of moisture, and where it receives a certain amount of sun, this is naturally more essential than when in shade. When happy, it soon forms clumps and masses by means of its underground stems, from which arise the short, leafy branches.

It is a plant which was introduced from Canada so long ago as 1774, but is not too common in nurseries, as I found on receiving several enquiries from would-be purchasers asking where C. canadensis could be obtained. It is not one of the "cheap" plants which betoken a large demand, and, in consequence, increased propagation by the trade. C. canadensis is quite hardy. *A.*

BULB GARDEN.

TULIPA ORPHANIDEA VAR. WHITTALII.

This delightful Tulip has been accorded specific rank as Whittalii, and as such I received it, some years ago, from the late Mr. H. J. Elwes; it is now, however, usually considered a varietal form of the Grecian species, T. Orphanidea, the flowers of which display the variability so characteristic of many Tulips, in charming shades of pale orange to rich brownish-crimson.

T. Orphanidea var. Whittalii is of sturdy growth, with goblets of copper suffused and flushed with sunset-yellow; it is a mid-season Tulip, flowering generally between the main body of species and the late ones, as represented by T. montana, T. Gesneriana and T. Sprengeri.

With me, this Tulip grew strongly and flowered splendidly in a well-drained border with a western aspect; it is still, I think, somewhat rare, and is a Tulip of undeniable beauty and considerable decorative or garden value. *R. E. A.*

MESEMBRYANTHEMUM.

(*Continued from p.* 249).

MITROPHYLLUM, Schwant.

8.—M. nanum, N. E. Br.—Plant dwarf and tufted, less than an inch high. When at rest the flowering growths are covered below with 2–4 coriaceous, blackish sheaths, that are often oblique and longitudinally rugose. Growths, when at rest, half-moon-shaped, 2–2½ lines broad and 1–1¼ line thick, length not stated. Free pairs of leaves sub-clavate; the second pair united to their tips. Flowers sessile. Calyx 6-lobed, with the ovary-part globosely pear-shaped. Petals white, only a very old flower examined. Stigmas 6, twisted together, nearly 2½ lines long. Ovary slightly depressed at the centre on the top. Capsule 3½–4½ lines in diameter; valves blackish within; expanding keels sub-triangular, adpressed and flattened, with toothed edges and broad marginal wings; cells roofed with cell-wings. Seeds ¼ line long, globosely obovate, pallid.

Conophyllum nanum, L. Bol., *Notes on Mesemb.*, Vol. II, p. 51.

Clanwilliam Division: Between Twenty-four Rivers and Porterville, on clayey soil. Leipoldt.

I have not seen this plant, but it seems to be closely allied to one that Dr. Tischer has described or is about to describe, under the name of M. Schickianum, Tisch., which is a stemless species about 1½ inch high, with the cone-leaves about 5 lines thick, tipped with leaf-points 5–6 lines long. *N. E. Brown.*

(*To be continued.*)

MITCHAM PEPPERMINT.

The cultivation of aromatic plants for the sake of the essential oils which they contain constitutes a very important branch of horticulture, the oils in question finding many applications as flavouring agents and in the perfumery and other industries. They are also, in many cases, used medicinally. Aromatic plants are cultivated for this purpose, and their oils are distilled in many parts of the world. The centre of the essential oil industry is situated at Grasse, in the south of France, described some little time ago in *The Gardeners' Chronicle* (Vol. LXXXIV, p. 225), the oils distilled at Grasse being, in many instances, the very best obtainable. In the case of two plants, however, those grown in England yield oils of a much finer aroma than those grown elsewhere. These are Lavender and Peppermint.

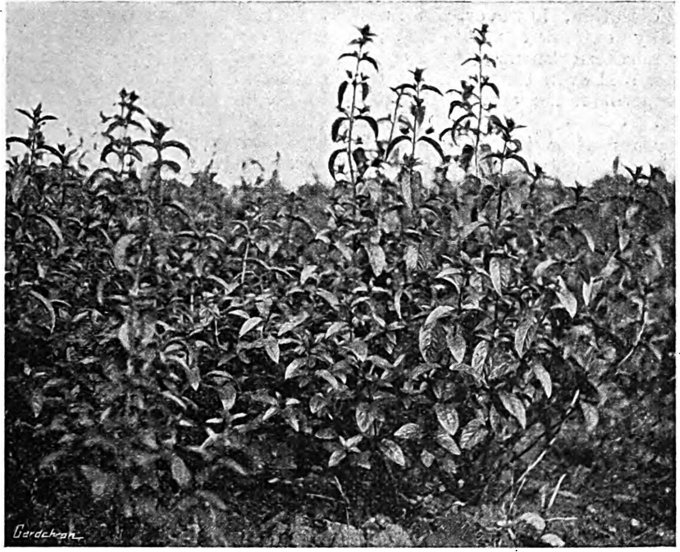
FIG. 128.—PEPPERMINT PLANTS (MENTHA PIPERITA).

Peppermint has been cultivated commercially at Mitcham, Surrey, on the outskirts of London, since the middle of the eighteenth century; and, although the activities of the builder have made serious inroads on the land available for the purpose, Peppermint still forms an important crop in the Mitcham district. It may be added that the plant is also cultivated elsewhere in the south-eastern and eastern counties, as well as in many other parts of the world.

The Peppermint, Mentha piperita, L., belongs to a critical genus, in which many hybrids and varieties occur. M. piperita itself appears to be a hybrid, its parents being M. aquatica, L., and M. spicata, Huds., and several varieties of it are recognised. It is found wild in Britain.

The chief characteristics of the plant (see Fig. 128), in addition to its odour, may be briefly summarised as follows:—The flowers are borne in terminal spikes, interrupted below. The leaves are shortly stalked, ovate-lanceolate, coarsely toothed and glabrous or nearly so. The lower part of the calyx is devoid of hairs. The plant produces an abundance of subterranean stolons, whereby reproduction is effected, the flowers rarely producing seeds.

The variety distinguished as Black Peppermint, which is the one mostly cultivated at Mitcham, has flowers of a deep lilac colour, and the stem and leaves are more or less tinged with purple. The variety known as White Peppermint has leaves of a brighter green, flowers of a paler hue, and leaves less markedly toothed. It is stated to produce an oil of finer flavour than the "black" variety, but the yield is less, and the plant not so robust in its growth.

It may be noted in passing that a variety of Peppermint distinguished as var. citrata, Ehrh., differs markedly from those above described, inasmuch as its odour somewhat resembles that of the Bergamot. It is sometimes regarded as a distinct species, and has also been referred to as a glabrous variety of M. aquatica.

Those who love simplicity, when confronted with a modern list of Mentha species, hybrids and varieties, may consider that the "splitters" have been hard at work. Actually, however, minute differences are of the greatest commercial importance in connection with Mints, as oils produced from plants which apparently differ from each other very slightly may possess markedly different aromas. Although all the foreign Peppermint oils, the Japanese excepted, are distilled from varieties of M. piperita, the English oil, and especially that obtained from plants grown at Mitcham, possesses a distinctive aroma and can command a price much in excess of that of its competitors.

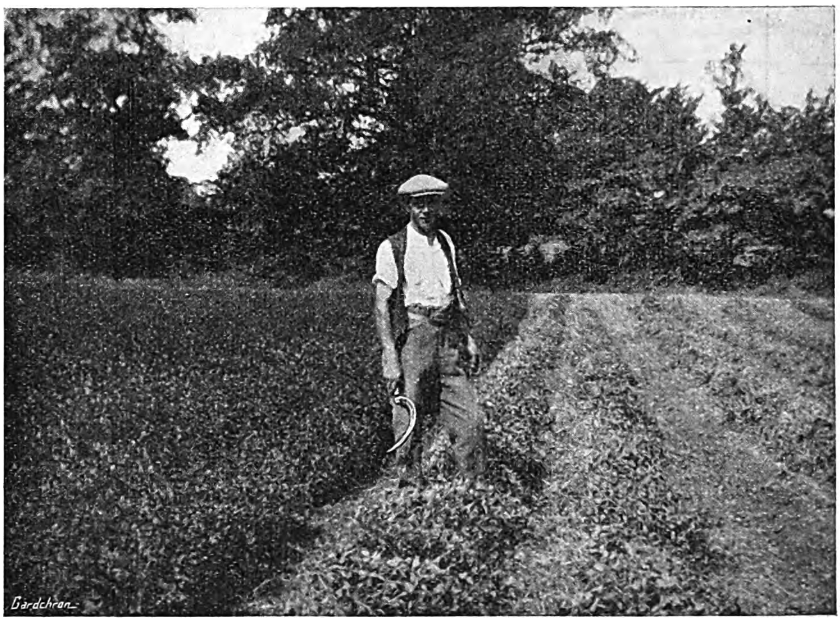
FIG. 129.—HARVESTING PEPPERMINT ON MESSRS. J. AND G. MILLER'S FARM AT MITCHAM.

The plant is very susceptible to climatic conditions, and would appear to undergo variation in accordance with these. I have been informed by one of the leading Mitcham growers that some time ago he exchanged a number of roots with an American grower for roots of the M. piperita variety cultivated in the United States. The first year, the plants more or less maintained their distinctive features. Afterwards, the American plants grown at Mitcham assumed the character of British plants, while the Mitcham plants grown in America were stated to have undergone exactly the reverse transformation.

This year, the continued drought has caused the harvest at Mitcham to be a poor one, for the plants require plenty of rain in the early part of the year, followed by an abundance of sunshine. The harvest takes place in August, and the plants are usually cut by hand, small sickles known as "Mint-hooks" being used for this purpose (Fig. 129). M. piperita is a perennial, although the first crop is usually the best, and, after three years, the quality of the plants rapidly deteriorates. New fields are created by pulling up the young, rooted shoots which form in the spring, and dibbling them in suitable ground about a foot or more apart. The earlier this can be done, the better is the crop. A light, rich soil is desirable, and effective weeding is extremely important. M. arvensis is a common weed and, if not removed, may very seriously mar the quality of the oil.

The oil is obtained by distilling the plants with steam, often, but not always, after they have been partially dried. The oil, being insoluble in water, separates in the distillate and can be purified by filtration and, if desired, by further distillation. At Messrs. J. and G. Miller's distillery, which the present writer had the pleasure of recently inspecting while the work was in progress, distillation is effected in copper stills holding round about a ton of material. Direct heating is avoided, this method, adopted in primitive types of stills, being liable to char the plants with disastrous effect on the aroma of the oil. The receivers, into which the water containing the precious oil runs, are enclosed in locked cages. It is thus possible for farmers to bring their crops of Mint to be distilled with perfect assurance that the oil will not be tampered with, each farmer having his own padlock, the key of which remains in his possession while his Mint is being treated.

The uses of Peppermint oil as a flavouring agent are very numerous, although, for many purposes, the cheaper foreign oils are employed in preference to the *de luxe* Mitcham product, which finds one of its chief applications in the manufacture of that delicious liqueur, crème-de-menthe. *H. S. Redgrove, B.Sc., A.I.C.*

EDITORIAL NOTICES.

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RHODODENDRON REPENS AND ITS ALLIES.

When Sir Isaac Bayley Balfour, dealing with the Chinese Rhododendrons, founded the sub-series Forrestii of his series Neriiflorum twenty years ago, it comprised one species, then unique, viz., Rhododendron Forrestii. In 1914, Forrest's collectors found R. repens, although it was not until 1917 that this species was collected in flower. In the same year, R. erastum and R. porphyrophyllum were collected, and in the following year R. serpens—all by Forrest's men. These five species, with R. pyrrhoanthum, Balf. f.—a species I cannot trace—form the sub-series Forrestii.

Nothing has since been heard of R. Forrestii—or, indeed, of the others; and although Bayley Balfour* and Forrest both regarded R. Forrestii as a good species, in the writer's opinion it is no more than, at most, a form of R. repens.

K.W. No.	Habit.	Leaf.	Pedicel.	Calyx.	Corolla.	Stamens.	Ovary.
8283 **8336** **(R. repens)**	Prostrate, flowers solitary, rarely 2, lying on or near the ground.	Oval or narrow-oval, 4·3 cms. long, 2·3 cms. wide; acute.	Glabrous.	An angular rim, glabrous.	Tubular bell-shaped, glabrous, scarlet.	Anther chocolate; filament quite glabrous, white.	Clothed with interwoven, translucent, white hairs. Style crimson, glabrous.
8341	Sub-prostrate, branches ascending. Truss 3-4-flowered.	Oval, 5 cms. long, 3 cms. wide.	Scattered, crimson-headed, glandular hairs.	An angular rim, edged with crimson-headed, glandular hars.	Bell-shaped, pink.	Anther orange-brown; filament pubescent at base.	Clothed with scattered, stiff, crimson-headed, glandular hairs.
8345	Sub-erect, branches ascending, 2-3 feet high. Truss 4-5-flowered.	Oval, 6 cms. long, 3·2 cms. wide.	Glabrous or almost so.	Large, scarlet, enclosing ovary; glabrous, except for a few scattered glandular hairs on rim.	Bell-shaped, white, flushed pink.	Anther red-brown; filament pubescent at base.	Clad with interwoven, translucent, white hairs
8362	Sub-erect or ascending. Truss 2-4 flowered.	Narrow-oval or elliptic; 5·7 cms. long, 2·3 cms. wide.	Hairy, Hairs white or buff; more or less interwoven, but scattered.	An angular, rim-like collar; glabrous.	Bell-shaped, scarlet.	Anther black or purple-black; filament carmine, glabrous.	Clad with closely interwoven translucent white or buff hairs, style glabrous.
8363	Sub-erect or ascending.		Scattered crimson-headed, glandular hairs.	Small, red, the rim beaded with glandular-headed hairs.	Narrow, bell-shaped, pink, with 5 small, crimson pocket-glands.	Anther brownish-yellow; filament pubescent at base.	Loosely covered with short, colourless, glandular hairs; style colourless.

Of this plant we now know much more than we did in 1917, when it was first collected in flower in north-west Yunnan. Although the specific name repens is, of course, admirable, it seems unfortunate that the name Forrestii was not attached to this beautiful plant. If, indeed, they *are* the same, the latter name has priority; but it is hopeless to attempt to dislodge a name as firmly fixed in the saddle as repens—a point which priority-fanatics ignore.

While discussing the question of R. repens and R. Forrestii, Bayley Balfour gives an outline of the characters possessed by the members of this group as he conceived them.† The plants, however, differ in certain fundamental characters; some have so many as three to four flowers in a truss, others have glandular hairs on the leaves, but all have a *more or less* creeping habit, the branches, when prostrate, rooting freely. In the field, however, one finds a fairly regular gradation from the *absolutely* prostrate R. repens, with solitary flowers, to underscrub plants with flowers in distinct trusses of three to four flowers; obviously, a plant bearing a loose umbel of flowers must have the stems ascending—at least it cannot be strictly prostrate. The writer would, in fact, retain in the sub-series Forrestii only those plants which are absolutely prostrate, which have solitary flowers, themselves prostrate, and glabrous leaves. Such an admission would rule out R. erastum, which has several flowers in a truss, and R. porphyrophyllum, which has the under-leaf surface hairy. Probably the only species remaining would be R. repens; but how much more widely distributed is it than was formerly believed! Bayley Balfour believed it to be endemic in north-west Yunnan, where it was first discovered on the Mekong-Salween divide; nor has it ever been found east of the Mekong. In the opposite direction, however, its area has been gradually extended until it now embraces all far northern Burma, the Assam frontier mountains, and even the main Himalayas, where that great range crosses Kongbo province, in Tibet.

In 1919, five years after its discovery, I found R. repens in fruit only, on Imaw Bum, so far south as 26°N. on the Burma-Yunnan frontier. Apparently Farrer did not meet with it on the Chimili Pass that year, since it is not mentioned in Mr. Evan Cox's excellent book;* Farrer did, however, meet with it further north on the Chawchi Pass (same range) in 1920. I suspect it to occur on the Chimili also, although sparingly; it was very rare on Imaw Bum.

In 1924 I discovered R. repens in Tibet (!) on *both* sides of the Tsangpo immediately above the great gorge, 350 miles almost due east of Lhasa. Since it does not occur in Sikkim and has not been recorded from Bhutan, this locality must be close to its western limit. Its discovery on Namcha Barwa was almost revolutionary—the first record of a Sanguineum Rhododendron from the Himalayas; for there can, I think, be no reasonable doubt that Scarlet Runner (K.W. 5,845) *is* R. repens, or at most a geographical form of it. Namcha Barwa, it is worth noting, is 350 miles in an air line north-west of where R. repens was first found. In 1926, I found R. repens again at the headwaters of the Irrawaddy, and in 1928 on the Mishmi Hills, Assam frontier; thus establishing the connection between the Yunnan and Tibetan localities. We are thus enabled to plot its area of distribution quite definitely; and not only its distribution, but those of its nearest allies also. We find, in fact, that R. repens and Co. occur at the wet, alpine ranges between the meridians of 94°E. and 99°E.; altitude, 10,000 to 12,000 feet; climate, seven months under snow, five months rain and mist. This is practically the distribution of Primula Agleniana and Co. although no member of that firm has quite the distribution of R. repens. It is another illustration of the unity of the Sino-Himalayan alpine flora.

We have now to consider the distribution of a number of Rhododendrons obviously allied to R. repens, although differing from it in several important respects. The distinguishing characters of R. repens are, the prostrate habit, glabrous leaves lying flat on the rock, flowers scarlet, without spots, solitary at the ends of the shoots, and prostrate; so large are they and so flat the branches that, although lying on their side, they usually overtop any other part of the plant.

The species to which I am about to refer have the glabrous, rounded leaves of R. repens, but the flowers are in trusses of three to four, and thus are not prostrate. The plants, in fact, form low, gnarled bushlets, rising nine to eighteen inches from the ground, and spreading until they may be so much as two feet through. Looking at the leaves only, one might perhaps take these plants for a variety of R. repens, which certainly has variable leaves, although they are usually pointed, not rounded. Mr. Hutchinson has, indeed, expressed himself to the writer in favour of that view, as regards one plant ('Carmelita') at any rate. But no botanist who had ever seen these two plants, that is to say, R. repens and 'Carmelita,' growing side by side, and watched them flower and fruit, could believe that for a moment. It is quite definitely wrong. These species are as distinct as two closely allied species of Rhododendron could well be.

The species I intend to deal with here—none of which has apparently been legitimised yet, are the following:—Carmelita (K.W. 5,847), Doshong La, Kongbo, Tibet, 1924; Scarlet Pimpernel (K.W. 5,846), Doshong La, Kongbo, Tibet, 1924; Rose of Kaso? (K.W. 6,935), Seinghku Valley, Burma-Tibet frontier, 1926; Rose of Kaso (K.W. 8,341), Mishmi Hills, Assam-Tibet frontier, 1928.

It seems to me that R. erastum, R. porphyrophyllum and the rest should come here, and not associate too closely with the unique R. repens. 'Carmelita' was the pet name given to the first of these semi-prostrate entanglements. It has flowers of a softly-glowing carmine. 'Scarlet Runner' sprawled flat on the granite slabs in full exposure to sun and rain, wind and snow, in splendid isolation, and not far away 'Carmelita' crouched in the rock hollows, forming, with other species, bushlets nearly a foot high and as much through. These plants derived some protection from their position, in consequence of which they were buried under snow in October, unopened capsules and all, when 'Scarlet Runner,' naked on the sunny rocks was broadcasting its seeds. 'Carmelita' indeed ripened its seeds, at any rate, that year, a good fortnight after 'Scarlet Runner.'

One of the species which grew with it was the closely allied 'Scarlet Pimpernel.' This had flowers of a darker colour than 'Scarlet Runner'—a rich crimson blood-red, in trusses of four, like 'Carmelita.' Both species were much rarer than 'Scarlet Runner.' In 1926, I found in the Seinghku valley at 11,000 feet altitude a solitary plant with the foliage and habit of 'Carmelita.' It was over, but one or two moribund flowers hinted that they had once been pink. In the autumn, I found another plant covered with capsules, under a gneiss rock in a half-sheltered gulley at 12,000 feet. It was obviously a very rare species.

In 1928 in the Mishmi Hills, Clutterbuck

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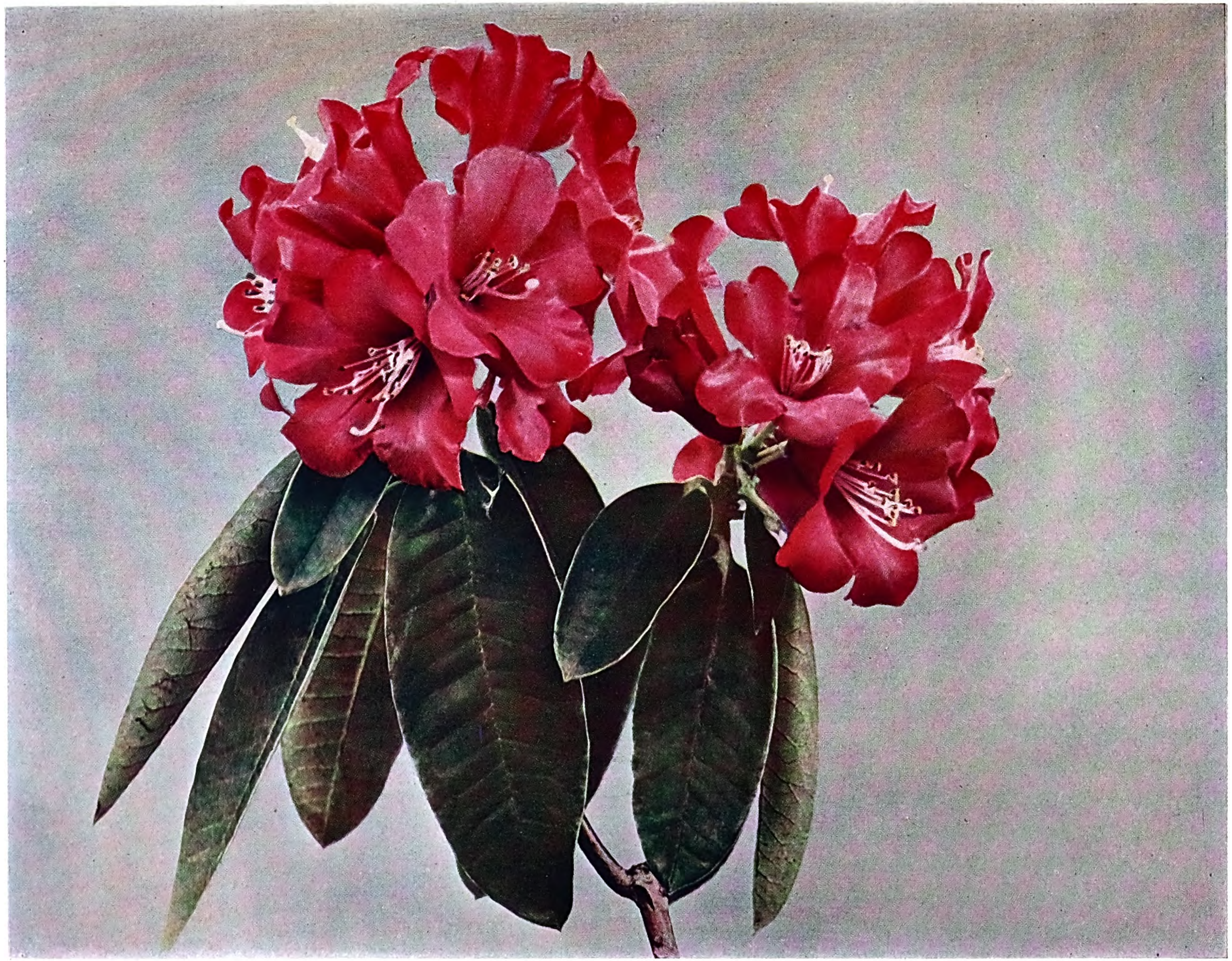
* *Notes from the R.B.G., Edinburgh*, January, 1919.

† *Ibid.*

* *Farrer's Last Journey*, by E. H. M. Cox; 1926.

Supplement to "The GARDENERS' CHRONICLE."



RHODODENDRON KING GEORGE.

and I found 'Rose of Kaso,' flowering in mid-June at about 12,000 feet altitude. In habit and foliage it resembled 'Carmelita,' with flowers of a delicate shell-pink, like those of R. Williamsianum. This species grew scattered in dense scrub thickets of 'Sanguineum' and other Rhododendrons, and was much the rarest species on the mountain. R. repens curtained the barest rocks hard by and was common enough. I have little doubt but that the Seinghku plant was this same 'Rose of Kaso.' While there can be no question that the three plants described are quite distinct, I found the half-dozen scattered plants we collected on Kaso to vary a good deal in minor points; especially in hairiness and in pigmentation. After careful comparison, I tabulated them as shown on page 226; but in spite of these differences, which look more formidable in the table than they did in the field, I am convinced that Nos. 8,341, 8,345 and 8,363 represent one species—'Rose of Kaso.' This plant flowered at least a fortnight later than R. repens; and where the thick underscrub—which included, besides scattered plants of 'Rose of Kaso,' R. sanguineum, R. calostrotum and R. brachyanthum—thinned away, there on the exposed frontier R. repens plastered the rock—alone.

No. 8,362 is more puzzling. Is it R. repens, growing more luxuriantly in a slightly less exposed position? To admit that is, perhaps, to betray 'Carmelita,' 'Scarlet Pimpernel,' and 'Rose of Kaso.' But I do not admit it. R. repens may occasionally bear two flowers on a shoot, but that is casual and exceptional. Its nature is to bear one; and where there is more shelter, R. repens does not grow more luxuriantly; it does not grow at all, being replaced by several other species. No. 8,362 may *look* something like a transitional species, but if so, why is it not more common? It ought to occur wherever R. repens occurs; but, on the contrary, it is very rare. Is it 'Scarlet Pimpernel'?—Possibly. Or is it another species of the same set? Unfortunately there are few or no seeds of it from the Mishmi Hills, although there may be a few from the Seinghku valley, under another number.

As regards colour, this ranges from crimson-scarlet, through carmine to pink. R. repens, however, is always a fierce scarlet. The only exception I have ever seen was a solitary plant with a solitary cream-coloured flower, in the Seinghku valley. I attached a metal ticket to it, and recovered it in October. Alas! it set no seeds. As a matter of fact, R. repens seeds very poorly for a Rhododendron. Where one had seen nothing but a sheet of scarlet flame pouring over a rock in June, one may pick up half-a-dozen capsules, with luck, in October. It is always thus. 'Rose of Kaso' seeded ill in the Mishmi country, but not so badly in the Seinghku valley. 'Scarlet Pimpernel' and 'Carmelita' also set fairly well.

The 1928 season in Assam may, therefore, have been capricious. One would expect these scrub species to fruit as well as the other 'Sanguineums' among which they grow, and that is profusely. Their large, gaily coloured corollas, although apt to be partly hidden among the leaves, are well protected against rain, by inversion, and should be freely visited by insects and birds. But who is going to crick his neck, crack his skull, or tear his wings, by diving at 'Scarlet Runner'? There it lies on the ground, glowering in a red rage, and the flighty creatures just ignore it. The only insects I have ever seen inside the corollas of 'Scarlet Runner' are ants; and *they* do not cut much ice.

R. repens is now a well established plant, at least, in favourable localities, and there seems no reason why we should lose it. At Edinburgh and elsewhere it flowers freely every year, and attracts a lot of attention. This is the plant introduced by G. Forrest. 'Scarlet Runner', which may or may not prove a more accommodating variety, has not yet flowered in this country. The same is true of 'Scarlet Pimpernel,' 'Carmelita,' and 'Rose of Kaso'; all are growing strong, and there are a fair number of plants, but they have still to flower and prove themselves. The first two have been collected only once; 'Rose of Kaso' has been collected twice. Thus there is room for more gatherings if they prove all that is expected of them. It is possible that there are more of these semi-prostrate 'Sanguineums' still undiscovered. They are rare plants, and if not found in flower are almost bound to be passed over; and the appalling country which they honour with their presence has been little enough explored. *F. Kingdon Ward.*

PLANTS NEW OR NOTEWORTHY.

EMMENOPTERYS HENRYI, Oliver.

THE illustration, Fig. 130, depicts a tree of Emmenopterys Henryi, one of the most interesting and remarkable of the many new trees introduced to our gardens from China during the present century. It was first described by Professor Oliver from dried specimens collected by Prof. Augustine Henry, in Hooker's *Icones Plantarum*, Vol. XIX, t. 1,823, in 1889.

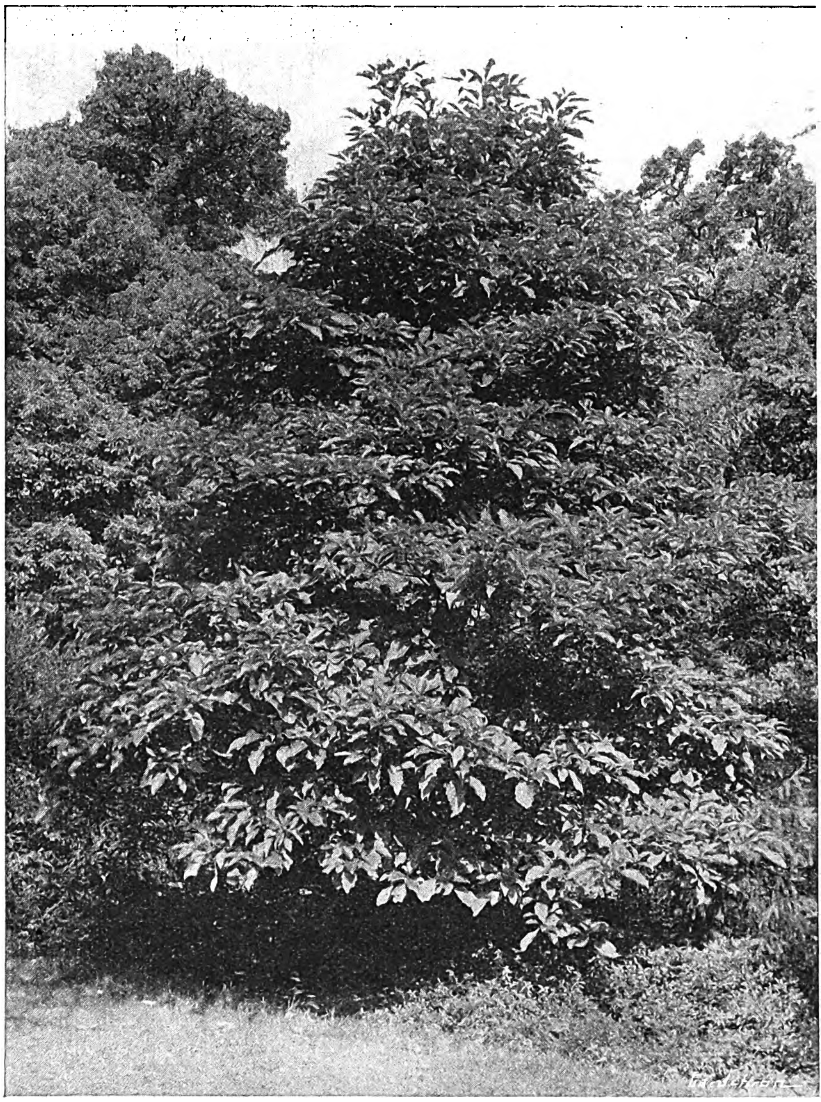


FIG. 130.—EMMENOPTERYS HENRYI.

Mr. E. H. Wilson collected specimens in June, 1900, during his first expedition on behalf of Messrs. James Veitch and Sons, but I think I am correct in stating that it was not until November, 1907, that Mr. Wilson was successful in collecting ripe seeds. It was from these seeds (Wilson No. 622) that plants were raised in the Coombe Wood Nursery. The specimen illustrated is one of these seedlings and was obtained from the nursery for Kew in 1913. It is now about twenty feet in height and growing freely.

Mr. Wilson describes Emmenopterys Henryi as one of the most striking and beautiful trees of the Chinese forests. It is a fairly common tree in moist forests on the mountains of western Hupeh and Szechuan, at an altitude of 2,000 feet to 4,000 feet. A deciduous tree with a stout trunk and abundant leafage, it attains a height of from thirty feet to eighty feet.

The leaves are up to ten inches in length, and five inches wide, dark green above, with rather prominent reddish veins beneath.

We are anxiously awaiting the development of the first flowers on the cultivated specimens. Dried specimens show that the flowers are borne at the ends of the shoots during July, in flattish to pyramidal corymbs up to ten inches wide and six to eight inches high. The flowers are white, funnel-shaped near the base, spreading towards the top into five rounded lobes, averaging an inch across.

The calyx is normally small, but a remarkable feature is that in some of the flowers one of the calyx lobes develops into a white, Cornus-like bract, sometimes attaining a length of two inches and a width of one-and-a-half inch. This persists on the fruit, gradually changing to a pink or reddish tint. The name Emmenopterys is of Greek origin, meaning persistent, and wing, in reference to the enlarged calyx lobe.

Emmenopterys is a monotypic genus belonging to the Natural Order Rubiaceae, one of the best known members of which is Luculia gratissima. During the severe frosts of last winter, and when the growth buds were swelling in spring, no Chinese tree or shrub was more anxiously watched. Except that it is growing in a moderately sheltered position, no protection was afforded, and at no time has it shown any sign of tenderness. Mr. George Forrest has also collected seeds, and plants of this origin are growing in British gardens. *A. Osborn, Kew.*

PROBLEMS OF PLANT LIFE.*

X.—Breathing Pores or Stomata.

(*Concluded from* p. 248.)

Two important questions yet remain for consideration; the first is physiological, and the other functional; in other words, what are the stomata, and what is their use? It is not enough to state that stomata consist of a pair of guard-cells surrounding an aperture which is associated with intercellular spaces or air chambers. A variety of facts come to light when we begin to examine the stomata under the microscope, by means of chemical reagents, and in other ways, and these have an important bearing on the problem of their use.

It will be clear from what has already been written respecting their numbers that the stomata are extremely small. Tens of thousands may be found on a leaf an inch square. Many years ago, a German botanist, Schacht, found that the stomata of such plants as Arbutus, Butcher's Broom, Holly, Teazle, Aloe and others, were coloured violet or blue under the action of iodine and sulphuric acid, and concluded that the guard-cells were always composed of cellulose. Since his day much new matter has come to light.

It is important to note the relationship which exists between the veins and the stomata of leaves, since the former affect the number and arrangement of the latter. In grasses, cereals and most monocotyledons the veins are straight and parallel (Fig. 131), and the stomata normally have a similar order. Contrast this with their disposition on the leaf of Sycamore (Fig. 132), Lime or Spiraea. Dr. Yapp has pointed out that the stomata in Spiraea or Meadow Sweet decrease in size but increase in number as one takes the leaves in order from below upwards. For example, while a lower leaf had some 390 stomata per square millimetre, another higher up had about 800, while near the top of the stem the numbers exceeded a thousand. Thus, three times as many stomata are found on an upper leaf as on a lower. In technical language, he regards the upper leaves of a plant of this kind as being "more xeromorphic in structure than the lower ones."

This brings us to the problem of function. Why do breathing pores or stomata exist? What end or ends do they serve in the economy of plant life? The question was the subject of heated controversy for a long time among the earlier plant physiologists. As no central orifice was at first observed, partly owing to the poor definition of the lenses in use, the stomata were taken to be glands. Grew, in his *Anatomy of Plants* (1682) held that they were either for the admission of air, or to serve as outlets for superfluous fluid. About the middle of the nineteenth century, Mohl demonstrated that they exist to give a passage to air which shall serve the purposes of inspiration and expiration. But it is not air alone that passes through these pores. It is now known that they have to do with moisture as well, and they have a most important bearing on the flow of sap, the transudation of water, and the behaviour of the plant as it is affected by drought, temperature, and other meteorological conditions.

The guard-cells or lips of the stomata are extremely sensitive, and exhibit the most remarkable fluctuations of movement under varying atmospheric conditions. These fluctuations are not merely mechanical, but are accompanied by well-marked changes of a chemical nature as well. Thus, when the stomata are closed, the guard-cells are full of starch, but as the stomata open, the amount of starch diminishes, and sugars take the place of the starch. It will thus be seen that the study is one of equal delicacy and importance, and this will account for the divergent views which are to be found in recent memoirs.

The leaf stomata are acted upon in a special manner alike by light, moisture and atmosphere. In some instances the stomata close down for the night to give the plant rest. This is not, however, by any means a universal habit. since the Cucumber, Buttercup (Ranunculus acris), and other plants have been observed to keep them open both day and night. Some plants, again, open their stomata in the morning, but soon close them again, this being particularly the case in dry climates. That fact is most suggestive, since it illustrates the relation of the breathing pores to drought, and shows that it is not the air alone which affects them, but moisture as well. When the pores are open, at least two different actions may be performed.

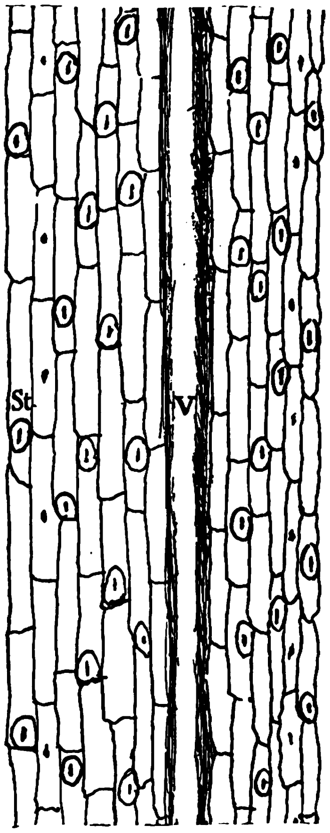


FIG. 131.—RIBBON GRASS.

(V) Vein; (St.) stomata, arranged in parallel rows.

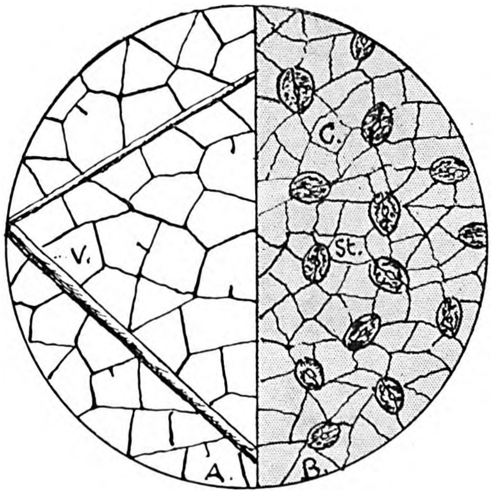


FIG. 132.—SYCAMORE LEAF.

(A) Venation; (B) cell structure and stomata.

On the one hand, carbon dioxide can be inhaled, while on the other moisture can be transpired.

It is well-known that light has a very important influence on stomata. If it is too intense it causes them to close, but most plants open them in normal daylight, and close them gradually at nightfall. Hot, dry winds also affect them, causing them to close. This is a wise provision to prevent excessive transpiration. Since plants are almost all dependent on a free supply of water it is of the utmost importance that they should be able to regulate the supply. In temperate climates, where rain falls at frequent intervals, the tendency is for plants to rely on a constant supply being furnished. Should this prove not to be the case, wilting speedily follows on the slackening of supplies. But in lands which have long periods of drought the plants tend to adapt themselves to these conditions.

It has been often pointed out that we must be on our guard against generalising too freely on subjects of this kind. Thus we have need to beware of over estimating the part played by the stomata in relation to transpiration. We have noticed, for example, that the stomata are usually open during the day. But it is just then that transpiration is the greatest. It follows that we must look on these organs as serving some other end, and recognise that they are as much concerned in the assimilation of carbon as they are in the process of transpiration. The latter function is necessary in order to keep up a constant supply of moisture from the soil, both to give turgidity to the plant and to enable the salts necessary for plant life (which are held in solution) to be well circulated among the various tissues.

I am not able at the moment to recall any experiments which have been carried out to account for one phenomenon which has more than once come under my own observation during periods of drought. It will frequently be noted that after the supply of moisture begins to run short plants will droop or wilt. If, however, no rain falls, certain plants possess the capacity to recover their turgidity and go on thriving as though no drought prevailed. To use a familiar illustration, they get their "second wind." Whether this is due to the stomata being closed, the roots modifying their action, or to the bringing into play of some reserve force whose existence we do not ordinarily suspect, is a problem which might well be investigated in our agricultural laboratories.

Although much splendid work has already been done, both at home and abroad, to demonstrate the uses of stomata, there are still problems to be solved ere we can conclude that we know all there is to be known on the subject. It may, perhaps, be as well to indicate to would-be investigators that a splendid bibliography is appended to the work of Professor Maximov, entitled *The Plant in Relation to Water* (Allen and Unwin, 1929). *Hilderic Friend.*

AN ENGLISH GARDENER IN CHILI.

(*Continued from p.* 226.)

The flora of the Chilean seaside naturally includes many species which are found inland and on the neighbouring sand hills, but there are also a fair number which I have not seen elsewhere. Of these, I think the most interesting is a shrubby Crucifer, of which I have only found two plants, although it may be more common in other localities; it forms bushes several feet through and is about three feet high. The flowers closely resemble those of a single Stock, and are white, and an inch across, while the fruits are large, flat and elliptical, about three-quarters-of-an-inch by a quarter-of-an-inch. It may possibly not be native, as there are several doubtful subjects on the coast and some, notably Ricinus, which is one of the commonest plants in some parts, were certainly introduced and have gone wild.

Another example is Eschscholzia californica, which is more at home and more plentiful in some localities than native plants; once its long, woody roots get a good hold, it will withstand any amount of sun and drought; it simply dies back to a small tuft of foliage and starts away again vigorously with the rains.

On the rocks near the sea are many succulent halophytes which I cannot place. Two of these which I believe to be Nolanas, have large, campanulate flowers, blue and white, respectively, with broad, triangular leaves. Another forms curtains over the rocks, with short, grey-green, fleshy leaves, which appear to be terete, but which are actually flattened or fluted on the undersides. This produces short, tubular, white flowers in summer.

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* Previous studies appeared in our issues of April 13 (p. 279). June 15 (p. 446), Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71); August 17 (p. 130), September 7 (p. 187), September 14 (p. 207), and September 28 (p. 247).

Mesembryanthemum chilense, the only Chilean species, grows all along the coast, particularly on the slopes near the sea, where it receives frequent spray; the leaves are long and triangular, and the stems trail several feet. The flowers are rosy-purple, although a white form is not uncommon, and the fruits, which are edible, have a fleshy pulp not unlike that of Gooseberries.

As regards the marine flora, there are many and diverse forms, the most useful of which is that known as Cochayuyo (literally, sea plant). This plant, Durvillaea utilis, grows on the rocks close in shore, and is cast up in quantities by a rough sea. It is immediately harvested, dried and marketed, and provides a much appreciated national dish.

To return to the cliffs: One of the most common shrubs is Lycium chilense, but a rose-pink-flowered, woody species of Eupatorium covers large areas. In the crevices of the rocks grow many small shrubs and perennial plants, the majority belonging to Compositae. One of the best flowers is a Calandrinia, probably C. grandiflora, with inflorescences two feet high and large, brilliant carmine flowers. The habit and foliage closely resemble that of a Cotyledon or Sempervivum—thick, fleshy stems, branching and bearing rosettes of fleshy, succulent leaves. An Oxalis which also has thick, succulent stems, bears corymbs of primrose-yellow flowers, shown up to advantage by dark green leaves. The latter are shed in summer, and the bare stems roast on the rocks in company with Cereus and Echinocactus. In the spring, these extremely xerophytic plants are wonderfully bright, and form some remarkably effective natural rock gardens.

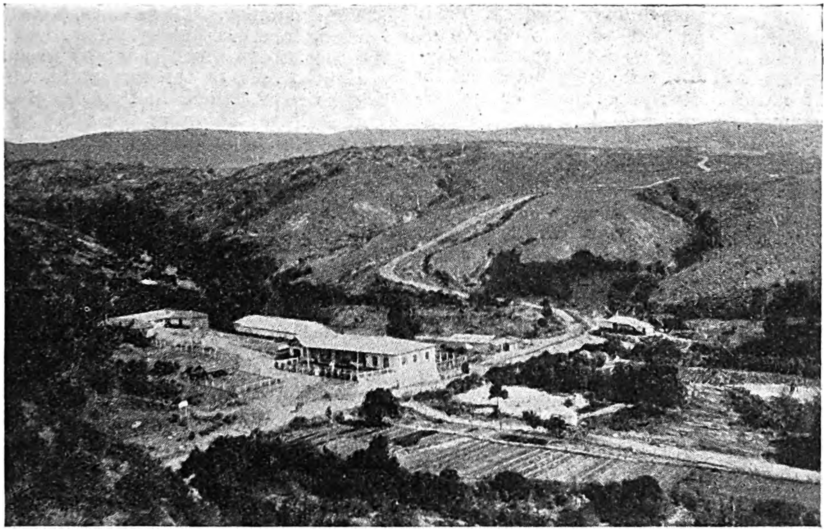

FIG. 133.—AGRICULTURAL SCHOOL, LAGUNA VERDA, NEAR VALPARAISO, CHILI.

Leaving the coast and coming to the slopes of the hills and plateaux of the coast range, we find many different genera and species, some of which are also common, on the long, comparatively level stretch which is the most fertile and productive part of central Chili, lying between the coast range and the Andes.

The surface soil of these hills is chiefly heavy loam with, in parts, clay and gravel, and the slopes, being for the most part uncultivated, for lack of water, are the more interesting from the point of view of the plant hunter. The trees are, with few exceptions, evergreen, with thick, coriaceous leaves; isolated specimens growing in the open form compact and generally very symmetrical trees, in fact, they remind one of the clipped Bays on a large scale.

Three of the most common are known as Peumo, Boldo and Litre. The first, Cryptocarya Peumus, belongs to Laurinae; it has fairly large, dark green, glossy leaves, but very small, insignificant flowers, followed by red, oval fruits, which in size and appearance might be compared to an Acorn; the pulp, which is not plentiful, is edible. The Boldo, Peumus Boldus (syn. Boldia fragrans) is, like the Peumo, comparatively slow-growing, forming a dense mass of foliage; most of the year the plants are dull, heavy-looking trees or bushes, but early in May they are smothered in white inflorescences to which the dark leaves form an effective background. The leaves are highly aromatic and are greatly esteemed by the country people, who infuse them in boiling water to make a drink like tea. Its family is Monimiaceae.

The Litre, Lithraea venenosa, is low-growing and shrubby, but in time makes a stunted, spreading tree. It is of little interest, has small, white flowers, flushed with pink in the buds, followed by quantities of light-coloured fruits, and is best avoided on account of its poisonous properties. On some people, contact with it brings out an ugly and irritating skin eruption. Its family is Anacardiaceae. In these exposed situations none of the three grows more than fifteen feet or twenty feet high, frequently with huge trunks in proportion to their size; all are used extensively for fuel, especially in the form of charcoal.

Belonging to the same family as the Litre and a close relation, although apparently not so resistant to drought, is Schinus latifolius, El Molle. In this the flowers are white, and although small, are borne in great profusion. Another tree, less common but more interesting, is the Quillay, Quillaja Saponaria, the bark of which is rich in saponin and is prepared and sold for cleansing purposes. The flowers are fairly large, but inconspicuous, while the fruits are curious; these are hard, divided into five carpels which, when mature, fold back, dehiscing by both dorsal and ventral sutures and releasing a quantity of small, winged seeds. Belonging to Rosaceae, this tree reaches twenty to thirty feet in height, and generally has several trunks arising from the same root-stock.

Another evergreen of some economic importance is the Lingue, Persea Lingue (Laurinae), which is prized for its yellowish-white wood that is easily worked, and as it stains well is used for imitating more valuable woods. Another species of Persea, not native, is extensively cultivated for its fruits, and called Paltas; this is Persea gratissima and its variety melanocarpa.

Generally, in a more sheltered situation, is found one of the most beautiful of Chilean trees, the Mayten, Maytenus Boaria; this attains a height of fifteen or twenty feet; it has the graceful habit of the Weeping Willow, and deep green foliage, which, incidentally, is used as forage in times of drought. The family Celastraceae is easily recognised by the resemblance of the fruits and flowers to those of the European Euonymus.

An exception to the general rule in that it is deciduous, is the only native Acacia, A. cavenia (A. Farnesiana), well-named Espino. The flowers are large for the genus, golden-yellow, and freely produced; the branches are close-growing and armed with strong thorns. The legume is hard and black, about two inches long, and is indehiscent. It rarely grows more than ten or twelve feet high, but sometimes has a spread of over twenty feet. There are some parts of the country covered entirely and almost exclusively with this species, and in September and October it makes a brilliant picture.

The smaller shrubs vary considerably in different localities; in some places the vegetation is chiefly composed of Berberis Darwinii, Trevoa trinervia, and Colliguaja odorifera. The first of these three is too well-known to require any comment. Trevoa trinervia is a spiny shrub belonging to Rhamnaceae; in habit it is untidy and rambling, and in summer nothing but a tangle of bare brown branches and spines, as it drops its leaves in time of drought. In winter, however, with the first rain, it produces masses of bright green, and in July quantities of close, white inflorescences. Although small individually, collectively the flowers are conspicuous at a considerable distance, the more so as it is one of the earliest species to flower. Colliguaja odorifera is also early-flowering and is an evergreen dioecious shrub with large male catkins. These are green and tinted with varying shades of red and brown, and bear large quantities of yellow pollen; the female flowers are small and appear to consist of little beyond three curling, red styles. When pollenated, these produce green, triangular fruits about half-an-inch long and as much in diameter, triocular, and with (generally) three hard, black seeds. The leaves vary between one inch and one-and-a-half inch long, are coriaceous, simple, elliptical or slightly ovate, having a serrated edge, the teeth of which are brown, giving the shrub a characteristic appearance. It grows about six feet high, and possesses the sticky, white latex so often found in the family Euphorbiaceae. *G. W. Robinson.*

(To be continued.)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)
(Continued from p. 251.)

ENGLAND, S.

SURREY.—The fine show of blossom on almost every fruit tree here in the spring has not been followed by an over abundant crop of fruits. The long winter and dry, cold spring, no doubt, had a great deal to do with the deficiency. Apples are not up to average. Among the best bearers this year are Lady Henniker, Lane's Prince Albert, Stirling Castle, Frogmore Prolific, Annie Elizabeth and Bramley's Seedling. The dessert kinds have very light crops. Pears are good on walls, and orchard trees are again well laden, the perry varieties especially so; Peaches and Nectarines are very light. Cherries were poor and Plums are very scarce, although with us Victoria never seems to fail. Raspberries were very plentiful, but were effected by the drought. Strawberries were exceedingly good, but very late. Black Currants and Gooseberries were again well over the average, but Red and White Currants were not plentiful. Figs outside, also Walnuts and Filberts, are bearing good average crops. The soil is very light. *John H. Shipley, Haling Park Gardens, South Croydon.*

——Fruit trees and bushes generally withstood the drought in this district remarkably well, especially considering the nature of the soil, which is a sandy loam on a bed of gravel. Apples and Pears are rather small, due to the lack of moisture. Pears appear to be the crop of the season. Bush fruits were all very good, Black Currants exceptionally so. Strawberries in this district were practically a failure. *O. Maddock, Ham House Gardens, Richmond.*

—— Apples here are almost a failure. Standard trees in the orchards blossomed well but never set fruits. I have a few pyramids that are sheltered from north-east winds which are bearing a few fruits; Allington Pippin, King of the Pippins, Wealthy, Beauty of Bath, Charles Ross and Lane's Prince Albert are the only trees that are carrying crops. Strawberries in this district were almost a failure, although a bed of last autumn-layered plants have given a good crop. Raspberries and Black Currants carried heavy crops, but Red Currants were poor. Peaches have fruited well. Pears are lightly cropped on pyramids, and I have a very heavy crop of Quinces. The soil here is of a very light nature, on sandy subsoil. *N. Fullegar, Eastbury Manor Gardens, nr. Guildford.*

—— Crops of Apples, Pears and Plums are somewhat patchy. Some trees are bearing very well, but others are considerably below the average. The Gooseberries were poor, as they suffered from early drought. Black, Red and White Currants were exceptionally good. Strawberries were abundant and good in size and flavour, in spite of the drought; The Duke, Duchess of York and Sir Joseph Paxton do remarkably well here. Raspberries were also a good crop. The soil here is a rather light loam. *James A. Paice, Copseham, Esher.*

—— Here, Apples, Pears, Plums and Strawberries have produced the poorest crops within memory. Bush fruits, on the other hand, fruited well; Black Currants, Raspberries and Gooseberries especially so, in spite of drought. The soil here is sandy, resting on a subsoil of red sand. *Charles Marchment, Winterfold House Gardens, Cranleigh.*

SUSSEX.—Apples are the outstanding crop of the year. The set is very heavy indeed on nearly all varieties, and the fruits have developed well and are exceptionally clean; scab has been controlled very easily, but sawfly has been rather troublesome. Plums blossomed well, but some varieties were cut by frost. Others set well, but afterwards dropped their fruits badly; Czar and Belle de Lorraine are the best. Pears and dessert Cherries did not set well. Morello Cherries were a full crop. Among bush fruits, Raspberries were over average; Black Currants and Gooseberries, a good average; and Red Currants rather under average. Strawberries lost a lot of their early bloom, but turned out better than was expected. The soil here is mainly Hastings sand. *E. M. Bear, Magham Down, Hailsham.*

—— The exceptional display of bloom on all kinds of Pears was followed by a fine set of clean fruits, quite two-thirds having to be removed. Of Apples, the same cannot be written, for although the amount of bloom produced was much below the average here, a great deal of this was ruined by the late frosts, with the result that we have the lightest crop of Apples that I have seen at Gravetye for the past seventeen years. In the lower ground the Gooseberry and Black Currant crops were ruined by the late frosts, but on higher land excellent crops were produced. The Strawberry disease so prevalent in this district has undermined the constitution of the plants, with the result that both quantity and quality are lacking. Nuts are abundant. Raspberries, mostly of a perpetual or autumn-fruiting character, were, in some instances, seriously damaged by the severe winter frosts; the crop is therefore lighter than usual. *Ernest Markham, Gravetye Manor Gardens, East Grinstead.*

—— The fruit crops here are exceptionally good, having escaped the late spring frosts, through being in close proximity to the coast, and the gardens being sheltered from north and east winds. Peaches, Nectarines and Pears are bearing freely, and thinning of these crops had to be taken in hand early. Apples, Plums and Cherries are average crops, and outdoor Figs good. Strawberries bore an enormous crop of very fine fruits; the plants are free from disease, and of healthy and robust growth. Gooseberries, Raspberries and Red and Black Currants bore heavy crops of large, fine fruits. Owing to the prolonged drought, all fruits had to be watered heavily. *J. J. Thompson, Compton Place Gardens, Eastbourne.*

WILTSHIRE.—Apple crops are very light in this district, but the trees are fairly clean and free from aphis. After the heavy yields of fruits in 1927 and 1928, fruit buds were scarce. This usually occurs with us after two or three years of full crops. Pears bloomed profusely, but there is only an average crop; probably the low rainfall of the district during the early months of the year was the cause of the blossom not setting satisfactorily. Plums are an average crop and very good, Monarch and Victoria being among the best. Cherries, both Sweet and Morello, all carried heavy crops, and Peaches and Nectarines are exceptionally plentiful and good; the trees are very clean and have been very free from blister this year. Apricots are a poor crop as there was hardly any blossom on the trees. Small fruits in all cases were very good, Raspberries in particular, The Devon and Pyne's Royal bearing excellent crops. Strawberries were good in some gardens, but a failure in others, and only where a change of stock has been obtained were the results satisfactory. The soil in this neighbourhood is of a light nature, overlying chalk or gravel. *S. W. Tucker, Longford Castle Gardens, Salisbury.*

ENGLAND, S.W.

DEVONSHIRE.—Apples promised well, but drought has caused a lot of fruit dropping. Gooseberries and Red and Black Currants gave very good crops. Pears are a better crop here than we have had for some years, but Plums dropped badly owing to drought. The soil here is light loam, over shillit subsoil—not very retentive and liable to feel the effects of drought. *Charles F. Mackintosh (Horticultural Department), Seale Hayne Agricultural College, Newton Abbot.*

SOMERSETSHIRE.—With the exception of Apples and Plums, the fruit crops in this district are very satisfactory. Peaches and Nectarines have been plentiful, and Pears are a good medium crop. Raspberries fruited abundantly, especially the variety Lloyd George. Strawberries were plentiful and very fine fruits. Plums are scarce. Black, Red and White Currants carried full crops. Apples are below the average for this district. Apricots and Cherries are above the average. Nuts of all kinds are plentiful. *J. Yandell, Halswell Park Gardens, nr. Bridgwater.*

GLOUCESTERSHIRE.—Many varieties of Apples were frosted at blossoming time, especially Bramley's Seedling. Pear and Plum blossom were also frosted. Raspberries bore an excellent crop of good quality. Black and Red Currants bore good crops. Many of the canes of Loganberries were killed, with the result that the crop on these is only moderate. Early blossoms of Strawberries were frosted, and plants and fruits suffered from drought, except de-blossomed maidens for runners. *J. G. Maynard, Pomologist, Research Station, Long Ashton, Bristol.*

—— We had a very fine show of blossom on all fruits, especially Pears and Apples. The former set well, but when the fruits were about the size of Peas, by far the greater number were shed. This was owing chiefly to the prolonged drought. Much the same remarks apply to Apples, and a lot are falling now, but we hope to have enough left for an average crop. Small fruits were better than we expected, Gooseberries and Black Currants being very good both in quantity and quality. The weather has been very trying for all crops. The soil here is heavy clay. *John Ettle, 201, Henleaze Road, Westbury-on-Trym, Bristol.*

—— Fruit trees generally show little signs of the severe winter, although here and there an Apple tree was injured in growth. Almost all kinds of fruits blossomed well, the principal exception being Apricots. In most cases the fruits set well, in spite of the almost nightly frosts, but crops on Apples Beauty of Bath and Worcester Pearmain are rather light. Red Spider has been troublesome on trees of Lane's Prince Albert and Langley Pippin. Peaches and Nectarines carried better crops than they have for several years, and were wonderfully free from leaf-curl. *S. W. Dance, Williamstrip Gardens, Coln St. Aldwyns, Cirencester.*

(*To be continued.*)

FRUIT GARDEN.

ROOT THINNING AND PRUNING.

ONE of the essential conditions in the successful cultivation of fruit trees in pots is that they must be overhauled periodically, and their roots thinned and pruned. This practice, however, is not general with fruit trees grown out-of-doors against walls or on fences, on the restrictive system, and yet the conditions are very similar. These trees, whether they be cordons, fans, or espaliers, are worked on restricting root-stocks which generally produce, within a limited area of the tree stem, quantities of fibrous roots, which in time become worn out and useless. Thinning the roots of such trees is quite as important as thinning the roots of fruit trees in pots.

We frequently come across trees, however, which obviously require root pruning, which is distinct from root thinning. Peaches, Apricots and Plums, in particular, may be found in two different conditions, either producing too much wood and very few fruits, or starved, stunted and bearing inferior fruits. In the first case the tree roots have, more or less, got out of control. They have, perhaps, entered the subsoil of some well-manured border immediately in front, and in their case root-pruning is the surest method to adopt to bring the trees into a fruiting state.

With the stunted tree, however, the case is quite different. When the surface soil about the tree is removed, a tangled mat of roots all struggling for existence will, invariably, be found. Most of these roots are of little use to the tree. They should be thinned, the oldest being removed and the cleanest and most promising retained. A trench, eighteen inches wide and the same in depth, should be made four or five feet away from the stem. Work inwards with a fork to the base of the tree, removing so much of the old, exhausted soil as possible until most of the roots are exposed. When the thinning and pruning is completed, the trench should be refilled with a good nourishing compost made up of loam, a little lime-rubble, and wood ash, and a good sprinkling of bone-meal. Make the soil firm about the roots, working it in among the fibres, and bringing these nearer the surface. A little well-rotted farmyard manure added to the top three or four inches of soil will be found advantageous for encouraging root action, and for the retention of moisture next summer. The best time to carry out this work is during October when the leaves are about to fall. There is then some warmth in the soil. Wounds heal over quickly, and new roots are pushed out at once, which are more capable than the old and matted roots of obtaining nutritive matter from the soil. A good watering should be given to settle the soil about the roots, and repeated in a few days, especially to wall fruit trees, if the weather is dry.

When trees make too much growth, it is certain they will not form fruit buds, nor will the wood ripen properly. If the trees are not too large they may be lifted carefully, the roots shortened, preserving most of the fibrous ones, and the trees replanted, working into the soil plenty of lime-rubble and wood ash, and making the soil very firm by treading or ramming. *H. H. C.*

GARDEN MANURES FOR OCTOBER.

Most growers recognise in a general way the necessity of making periodical applications of phosphatic fertilisers to make good the loss which must inevitably result from continuous cropping; moreover, on certain types of soil particular crops, such as Potatos, Turnips, Peas and Beans, and some fruit crops, are particularly responsive to their application.

In the method of application of this important element a wide range of choice is offered as there are so many varieties of phosphatic fertilisers that it is sometimes difficult to select the type most suitable for a certain soil condition or for a particular crop, but, broadly, these fertilisers may be divided into two main groups, (a) those soluble in water, and (b) those insoluble in water; and it is from the latter group that the type should be chosen for use at this season of declining activity in plant growth.

The three chief types of insoluble phosphates in this group are bone-meal, basic slag and rock phosphates, and while certain advantages accrue from the use of bone-meal because of its organic origin, its extensive use in the preparation of feeding meals makes it too expensive for use as a general fertiliser. A good sample contains nearly fifty per cent. of phosphate and from four to four-and-a-half per cent. of nitrogen, but it is even slower in action than the best grades of basic slag.

Basic slag contains two fertilising ingredients, phosphoric acid and lime, the percentages of which vary according to the nature and quantity of the materials used for removing the phosphorus from pig iron in the process of steel manufacture. Owing to the form of combination of the phosphoric acid, it is insoluble in water but more or less soluble in weak acids, and the action of acid excretions from the roots of plants produces a solution in the soil water, which, being similar to that of weak organic acids, is easily capable of dissolving a greater or less proportion of the phosphoric acid contained in the various basic slags. A certain proportion of the phosphoric acid is also dissolved by water containing carbonic and ulmic acids, and is thus conveyed to the feeding roots. The degree of effectiveness of any basic slag depends, therefore, upon the percentage of its phosphoric acid which is easily soluble in weak acids, and is consequently assimilable by the roots of plants. As different forms of basic slags show material differences in solubility, the general standard adopted for measuring its effectiveness in the soil is its solubility in a two per cent. solution of citric acid, therefore in purchasing a precise guarantee of citric-soluble phosphates in the sample offered is a better guide to its probable effectiveness in the soil than a simple statement of its total percentage of phosphate.

An advantage in the use of basic slag is that there is no fear of loss through washing out by drainage; the phosphoric acid not taken up in the first year remains in the soil in undiminished availability for the use of succeeding crops, and good effects from its application have in some cases been noted for several subsequent years. Further, the lime contained in basic slag is itself of considerable value and supplies what is often a much needed base, and its effect in bringing the soil potash into solution and in promoting oxidation of the nitrogenous reserves in the soil is sometimes very marked.

Rock phosphates, particularly the relatively soft north African rock, have a higher phosphate content than any other type of phosphatic fertiliser, and samples containing over eighty per cent. of phosphate of lime are not uncommon; moreover, they are the cheapest phosphatic fertilisers available per unit of phosphate. Probably their use is more extended in the field than in the garden, but they may be used with confidence as a substitute for the best basic slags and, generally, give as good results. Like basic slag, they are slow in action, and their effectiveness depends largely on the fineness of grinding. They are usually ground so that eighty per cent. will pass through a sieve with 10,000 holes to the square inch, but some samples are ground even finer than this, and there is some evidence to show that the better results obtained from the use of this finer material more than justifies the extra cost of grinding.

It cannot be too much emphasised that in the use of all these fertilisers which are insoluble in water, thorough incorporation with the soil is an essential factor in successful treatment. Water-soluble fertilisers may be carried in solution by the soil water to the feeding roots of the plant and become absorbed, but the insoluble ingredients must be widely spread through the rooting area so that the weak acids in the soil or the acid exuded by the roots can dissolve them and make them ready for absorption. *W. Auton.*

HOME CORRESPONDENCE.

National Carnation and Picotee Society.—The information supplied to your readers on p. 210, by Mr. A. E. Amos, Hon. Secretary of the National Border Carnation and Picotee Society (Southern Section), instead of clearing any doubts at present existing in the minds of prospective members, is little less than a deliberate and unprovoked charge of misrepresentation and misappropriation against the Northern Society. Evidence supports the assertion that the only society entitled to use the title claimed by your correspondent has long been defunct; yet it is interesting to add that it was a Northern Society, operating from Manchester, and formed in 1874. During its period of existence, the Southern Society, founded in 1877, was "an ordinary affiliated society." This is merely history of yesterday, and is of little moment, but the Southern body cannot conceivably offer any advantages over the Northern Society for a resident of the Midlands or North. The latter Society lays no claim to cater better for interested gardeners out of its territory, but its members justifiably take exception to a cheap advertisement at the expense of their interests. *John A. Hewitt, Hon. Treasurer, Northern Section, Rock Street, Tilsmoor, Sheffield.*

Vegetables at Burford, Surrey.—In spite of the drought, vegetables have never been better than they have been this season at Burford. The Cabbages are very good indeed, and we were very pleased with the behaviour of that trio of spring Cabbages, Sutton's Harbinger, Sutton's Flower of Spring and Sutton's April. At the present time Summer Drumhead is a good Cabbage, but is surpassed by Kinderkopf, a marvellous, solid, green ball the size of a child's head, by Winningstadt, and by the two quintal Cabbages which are named after Auvergne and Alsace. Potatos have been uniformly good, although somewhat small. For all-round purposes, nothing beats Majestic; Red King, which we are trying for the first time, is a handsome Potato but, personally, I do not care for its flavour. In Cauliflowers, the Erfurt Market variety has been a great success; on the other hand I do not think that the much lauded Roscoff is going to do well here. This year has suited Haricot Beans very well indeed, and they promise to shell out well, both as regards colour and size. Some people think that any French Bean can be used for Haricots, but this is a complete mistake, for the tender-skinned Flageolet is the result of many years' breeding and selection. We have been pleased to find an increasing interest taken in out-of-the-way vegetables, and we have had many visits from head gardeners whose employers are interested in these vegetables. Mexican Tree Spinach is now nearly ten feet high, and is the only Spinach we are picking at the present time. The first crop of Fennel showed a tendency to bolt, but the second was excellent and produced fine hearts. We have never had so many Aubergines and Peppers; they are planted out in frames, the lights being taken off permanently towards the end of May. In Aubergines there is nothing to beat Black Beauty, and of Sweet Peppers Glory is the one to grow. Aralia raised from seeds has made immense growth and should force very well in the winter. Canteloup Melons planted out in unheated frames have cropped well and carry six to eight fruits to the plant. It is quite unnecessary to fertilise them by hand, as fertilisation is done by the bees. Cape Gooseberries are producing a marvellous crop and we hope to exhibit them at the Fruit and Vegetable Show. *William Lawrence.*

Insects that Fertilise Pansies.—It is well-known that garden Pansies, including those that are popularly named Violas, do not come true from seeds, but little is stated about insect agency, much less the actual insects that visit the flowers. During seven years no species or variety of Viola had been planted in our garden, but about two years ago a degenerate Pansy appeared, and since then hundreds of plants and thousands of flowers have been produced, and every one of them came true to colour. These flowers must have been selfed, seeing that no other was in the same or immediate gardens. Many years ago, I observed that the Silver-Y Moth (Plusia gamma) was very industrious in visiting the flowers of garden Violas during the dusk of the evening, and passing from one colour to another indiscriminately. I had considerable trouble in excluding this moth by fixing gummed paper over the entrance to the nectary of varieties that I had been crossing, for the paper sometimes got pushed aside and my work was frustrated. Butterflies occasionally visited the flowers during the day, but they were clumsy plunderers owing to the irregular structure of the flowers. Two seasons ago, I sowed seeds of the wild Viola Pesneaui (V. rothomagensis), and this year had ample evidence that hive and humble bees, chiefly Bombus hortorum, were quite expert in probing the flowers of the above species or variety of Viola lutea. Seedlings have sprung up in abundance and it will be interesting to know whether or not the flowers have been crossed with the degenerate garden Pansy. *J. F.*

Identification of Fruits.—I should be very much obliged if you could draw the attention of the readers of your paper to the desirability of giving full information when fruits are sent in for naming or identification. We invariably ask when sending in fruits, that the following regulations should be conformed with:—Of fruits, send at least three perfect specimens of a variety. Do not send until the fruits are mature, and then choose specimens representative of the particular variety. Avoid sending bruised, diseased or abnormal fruits. Include with each variety a typical shoot with foliage. Number each variety, preferably in Roman figures, by marking the skin with a hard pencil and keep a record of the tree from which it is gathered. Labels are often displaced during transit. Wrap each fruit in paper and pack it carefully and securely in wood-wool or similar material. Flimsy cardboard boxes are usually crushed in the post, while scented soap boxes taint the fruits and obscure the characteristic flavour. Give all the information you can respecting the age of the trees and how they are grown, *e.g.*, indoors or out, as cordons, bushes or standards, etc. I think you will agree with me that if a little more care by enquirers was taken, not only this Society, but many other Societies or persons asked to name or identify fruits, would be very much facilitated. *F. R. Durham, Secretary, Royal Horticultural Society, Westminster.*

Cotoneaster frigida var. fructu-luteo.—The following record of an experience in breeding this shrub may be of interest to your readers. The variety differs from the type only in the colour of its fruits, which is yellowish or creamy-white instead of bright red. In September, 1920, when visiting Stevenstone, North Devon, I obtained fruits of this variety from a single plant growing in the grounds there (Mr. Bean refers to this Stevenstone specimen in his *Trees and Shrubs Hardy in the British Isles*). From the seeds so collected, thirteen plants were raised at Roath Park in 1921, and these (growing together in a nursery row) produced flowers and fruits for the first time in 1925. Without exception, the fruits proved to be of the same bright red colour as in the type. In turn, seeds from these were sown in 1926, and nineteen of the plants so raised have flowered and fruited for the first time this season. In ten of these plants the fruits are again red, but the other nine bear the yellow fruits of the fructo-luteo grand-parent. Incidentally, it may be mentioned that in these yellow-fruited plants the foliage is of a distinctly lighter shade of green than in the type. To explain these results, it would seem necessary to assume that individual plants of C. frigida are self-sterile (which is not improbable), and that the flowers of the solitary Stevenstone yellow-fruited plant were, in 1920, fertilised by pollen from a plant of the red-fruited type growing in the vicinity. On this assumption, red would appear to be dominant over yellow. Further, to test the recessiveness of yellow, I intend next year to cross the nine yellow-fruited plants among themselves, in the expectation of raising a batch of yellow-fruited seedlings, and yellow only. *A. A. Pettigrew, Cardiff.*

Meconopsis Baileyi.—In *The Gardeners' Chronicle* for July 13, Mr. Jonathan Fiona refers to this plant as "generally supposed to have been discovered some few miles from Gangtok in the Tibetan Alps by Major Bailey." "Generally supposed," of course, commits no one, except Mr. Fiona. The facts are easily ascertained by anyone who takes the trouble to look them up—*not* in *The English Rock Garden*, published six or seven years before Meconopsis Baileyi was seen in England. Gangtok is not in the "Tibetan Alps"—wherever they may be—but is the capital of Sikkim. From Gangtok to the home of M. Baileyi in Tibet is 300 miles in an air line; but since one cannot yet fly over the Himalayas, it would give a better idea of the country and mountains to state that it is a month's hard marching by the shortest route. Surely "some few miles" is a misleading understatement—except perhaps in the American idiom! *F. K. W.*

COLONIAL CORRESPONDENCE.

DIDYMOCARPUS.

This interesting family of the Natural Order Gesneraceae is very common in Malaya. Ridley, in the *Flora of the Malay Peninsula*, mentions fifty-six species and about ten varieties. The flowers are disposed in terminal panicles or in a cyme of one or more flowers. The corolla is funnel-shaped, white, blue, yellow, purple, white streaked with violet and other beautiful shades. They are found growing in dense jungle from sea-level to 6,000 feet altitude, but they prefer the mountain forests, especially near running water.

Unfortunately, they are difficult subjects to cultivate, and a position in a shady part of the garden is essential. Some of the species, however, make excellent pot plants and may be successfully grown in the Fern house or interplanted with Ferns.

The following species are found in the Larut Hills:—D. crinita, a dwarf plant with woody stems about six inches tall; the leaves are lanceolate, pubescent above and below; corolla trumpet-shaped, pale blue, often nearly white or white with blue lobes. D. malayana is found at low elevations; it has short stems and firm, ovate leaves, the corolla is bright yellow, about two inches long and rather narrow at the base. It is known locally as the Malay Cowslip. D. sulphurea is a shrubby, pubescent semi-climber with deep green leaves which are purple and hairy beneath, and are arranged in unequal pairs, while some are large and others only half-an-inch long; the corolla is funnel-shaped, nearly an inch long, with the lower lip longest, pure yellow; a very distinct plant. D. flava is a shrubby plant nearly four feet tall, leaves lanceolate, acute, very hairy, about four inches long and one-and-a-half-inch wide; the flowers, which are rich yellow, are borne on tomentose peduncles in clusters of four or five together.

Other species are D. citrina, D. violacea and D. hispida. The last-named is very common on Maxwell's Hill, Malaya; it has funnel-shaped flowers which are white, with violet streaks in the mouth of the tube.

A compost of peat or leaf-mould, loam and a little silver sand, is suitable for them, while propagation is effected by cuttings. *F. S. Banfield, F.L.S., Malaya.*

SOCIETIES.

ABERGAVENNY SHOW.

This show is really four in one, and it was first established as a Horse Show in 1868. Since then other sections have been added, including the horticultural one. The show was held in Bailey Park, early in September; the weather was fine and the attendance good.

The horticultural section fully maintained its high reputation, the whole being admirably organised by the Secretary, Mr. H. J. Rice. There was an extraordinarily fine lot of flowers, while the large Onions and collections of vegetables attracted considerable attention. The principal class in the open section is that for trade exhibits, to occupy a space twenty feet by four feet, and in this there were five exhibits. These were of a high standard, and the judges had some difficulty in making the awards. The first prize and the Vaughan-Morgan Shield were awarded to Messrs. S. Treseder and Son, Cardiff, who staged an artistic group of Dahlias, Roses, Chrysanthemums and Gladioli; second, Messrs. W. Treseder, Ltd., Cardiff, whose display contained a meritorious lot of Dahlias; and third, Messrs. Fraser and Brown, Abergavenny, with a miscellaneous collection of Lilies, Gladioli, etc.

For a collection of Roses arranged for general effect, to occupy a space ten feet by four feet, the King's Acre Nurseries were first. Theirs was a fine effort, the whole group being most artistically arranged. There were excellent pillars of Shot Silk, Madame Butterfly, Betty Uprichard, the beautiful Lady Inchiquin and Mabel Morse, while the front contained several good Polyantha varieties, notably Edith Cavell, Marshal Foch and Elsie Poulsen. The second prize was gained by Messrs. Barham, Bessaleg, Newport, whose best varieties were Lady Inchiquin, Margaret McGredy and Elizabeth of York.

Herbaceous flowers were quite a feature, the first prize for nine distinct varieties, including bulbous plants, being secured by Col. Herbert, Abergavenny, whose best vases were of Senecio Clivorum and Physostegia virginianum.

Annuals were well displayed, also Asters and Dahlias, the dry season being responsible for the first rate blooms of the former.

All the vegetables classes were well filled, and in the open section for ten distinct kinds, Mr. T. Bowen, Aberaman, secured the Challenge Cup and first prize for finely grown produce, his Onions, Celery and Cauliflowers being especially good; Mr. F. Jenkins, Aberdare, was second.

In the amateurs' class for a collection of vegetables, competition was more keen, only six distinct kinds being required. Mr. A. P. Thomas, Abergavenny, secured the premier honours and the Challenge Cup with excellent produce, and he had fine Beans, Cauliflowers and Celery; Mr. J. Berry was second, and Mr. W. Price, third. Potatos were well shown, and the Silver Medal and first prize for a single dish were won by Mr. T. Howard James, Magor; while for a collection of six varieties, the first prize and Silver Medal were gained by Mr. F. S. Rogers, Caerphilly, with Mr. F. Bowen, second. Onions were exceptionally good, and here Mr. F. Bowen excelled in both classes—for winter and spring varieties, respectively.

This show is also remarkable for the display of fruits. For a collection of twelve dishes of hardy fruits (Peaches and Nectarines excluded), Miss Solly Flood, Crickhowell, won the Challenge Cup and first prize with fruits remarkable for their high culture and splendid finish, the Cherries, Plums, Currants and Apricots being noteworthy. Lord Treowen was second, and Miss P. Marshall, third. The Hon. Mrs. Bevan, Monmouth, was first for Grapes, and Miss Solly Flood led for six Peaches.

Non-competitive groups were also a feature of the show, and Gold Medals were awarded to the King's Acre Nurseries, for pot fruit trees; Messrs. H. Townsend and Sons, for a miscellaneous group; and Messrs. Pitt and Son, for a similar display and various floral designs. Mr. W. E. Pope, Abergavenny, secured a Silver-gilt Medal for a group of seasonable subjects, nicely arranged. Many educational exhibits were staged in a special marquee by the Monmouthshire Agricultural Institute.

CHESHIRE COMMERCIAL FRUIT SHOW.

This show was held in conjunction with the Middlewich Show in mid-September, and a special tent was devoted to it.

At the end of the marquee the Cheshire School of Agriculture had a grading machine and box-nailing press, and demonstrations were given in grading and packing. One side of the marquee was taken up with the Cheshire School of Agriculture Horticultural Department's educational exhibit. The result of the tar-distillate spraying trials were explained by means of charts and piles of Apples demonstrating increased weights from certain sprayed plots.

The lime-sulphur trial plots for scab control also had a place, and charts showing weights of fruits from sprayed plots showed that where tar distillate alone was used it seemed to increase scab, and there was more scab on these plots than on the control plots, both in the case of Worcester Pearmain and Bismarck. Manuring also was dealt with, and samples of potash starvation and nitrogen starvation were on view, together with the manures necessary to prevent such conditions. There was also a very interesting collection of insect pests and fungus diseases found in Cheshire attacking Apple and Pear trees.

On the other side of the marquee there were three trade groups. Messrs. Murphy and Son had an excellent exhibit showing the various products they sell, and a very effective feature was a Mortegg-sprayed branch and an unsprayed branch from the orchards of Mr. C. Derbyshire, Middlewich. The Warwick Saw Mills had a stand displaying Apple and Pear boxes, and Messrs. Booseys had a very good collection of Apples and Pears on view, together with maiden and two-year-old Apple and Pear trees.

There were eight competitive classes. For two half-boxes of Apples, any early dessert variety, Mr. C. Goodwin, Holmes Chapel, was first; and Mr. H. C. Croome, Guilden Sutton, Chester, second, both showing Worcester Pearmain. Mr. William Platt, Leftwich, Nortwich, was first for two half-boxes of a late dessert variety; second, Mr. H. C. Croome; while for two boxes of Bramley's Seedling, Mr. H. C. Croome led, and Mr. C. Goodwin was second. For two boxes of Lane's Prince Albert, first place was taken by Mr. H. C. Croome; second, Mr. William Platt; and Mr. Croome also led for two boxes of Newton Wonder.

The first prize for two boxes of Lord Derby was secured by Mr. William Bibby, London Road, Frodsham; second, Mr. C. Goodwin. Mr. H. C. Croome, with Bismarck, showed the best two boxes of cooking Apples, any variety, while in the class for two half-boxes of dessert Pears, first place was taken by Mr. C. Derbyshire, Mr. H. C. Croome securing the second prize.

BANFFSHIRE FIELD CLUB.

"One of the most interesting addresses ever delivered in that hall" aptly describes the lecture on the Begonia, given by Mr. John G. White, of the Aberlour Orphanage, Banffshire, before the members of the Banffshire Field Club. For well nigh three decades, Mr. White has devoted much of his leisure to the cultivation of the Begonia, and his failures and successes during that period were delightfully set forth in the course of his address.

At the outset, Mr. White stated it was really marvellous to see the Begonias of to-day, in view of the very few species from which they had sprung. In 1865, a collector, Pearce, travelling in Bolivia, sent home the first tuberous-rooted Begonia. From species discovered in Bolivia, the whole of the tuberous Begonias had sprung, and it was simply due to hybridisation, and man's careful crossing of the different varieties, they had to attribute the exquisite specimens seen to-day. As an instance of the value which was placed upon the plant, Mr. White told the story of the English grower who kept to himself for seven years the beautiful variety Lady Cromer he had produced, then sold it at 30s. per tuber, and netted about £700 from it. There has been a great improvement effected since the advent of Lady Cromer, and he regarded Lady Ann as one of the best to-day.

At this point, Mr. White exhibited a specimen of this variety on which were blooms seven inches across. Proceeding, Mr. White characterised the tuberous Begonia as the best decorative plant for the greenhouse during summer. For bedding out, Begonias were extraordinarily good, and for this purpose the moist climate of the north of Scotland suited them admirably. While not very suitable for cut flowers, they were very useful for floating in bowls. As basket plants, tuberous Begonias were unsurpassed. This season he had seen a magnificent plant grown in a hanging basket by a butcher. It had no fewer than 175 blooms on the one plant, which was of the Mrs. Bilkey variety.

Coming then to deal with his personal experiments, Mr. White confessed that to him the most interesting thing in the growing of Begonias was to secure perfume, and then he told his listeners of some of the successes and disappointments during twenty-three years experimenting towards that end. He started producing sweetly-scented single blooms from the fragrant Bolivian plant and obtained a great variety of scent—Cinnamon, Peppermint, honey, and even so strong a scent as that of Attar of Roses. The perfume was strongest in the morning; in the evening the plant was quite scentless. It was in attempting to obtain scent in the beautiful double Begonia he met with difficulty. It was not until February 26, 1907, that he got what he wanted. Out of a hundred seedlings raised, there bloomed three really good doubles, two slightly scented, the other a gem in size, colour, shape and sweetness, a counterpart, in fact, of the seed parent with the addition of perfume. He named it Double Pink Sweet-Scented. He did not claim to have raised the Sweet-scented Begonia, but he did claim in a humble way to have raised the first large-flowered, double, sweetly-scented Begonia. Nature had played all sorts of tricks with his endeavours. The result of his work in trying to get perfumed doubles was but two varieties. The first he secured, as noted, in February, 1907, and the second in 1925, and that being the year of the Aberlour Orphanage Jubilee, he called it Aberlour Jubilee.

Concluding his address, Mr. White reminded his hearers of the present mechanical age, when everything seemed to be subservient to mechanism, and said he felt sure that in years to come, in the period of robot-like figures, people would surely turn to the garden for recreation, for the garden was "the purest of human pleasures."

The Rev. Dr. Bruce, who deputised for Sheriff More, the President of the Club, in moving a vote of thanks to Mr. White, said Aberlour was becoming a centre of botanical interest, but as units they, the members of the Club, would try to follow the advice that had been given them by Mr. White, who had delivered one of the most interesting addresses ever heard in that hall. Hearty applause endorsed and carried the motion.

GLASGOW AND WEST OF SCOTLAND.

The winter session of monthly evening lectures was inaugurated on September 25, when Mr. John Cowan, Doonholm Gardens, Ayr, described the methods of cultivation which he followed in the production of vegetables for exhibition.

He regarded the preparation of the ground as one of the most important factors towards success, and this work should be done in early winter. All the ground occupied by prize vegetables at Doonholm was trenched at least two spits deep. To those with shallow or sandy soil he did not hold out much hope of success. Next to deep cultivation, good manuring was of importance. Certain varieties of vegetables, such as Carrots, Beetroots and Parsnips, could be grown quite successfully without the aid of farmyard manure. These he grew with a little artificial manure mixed in the soil and put into the holes bored for all tap-rooted vegetables, but Leeks, Celery, Peas, Onions and the various members of the Brassica family required good farmyard manures.

Mr. Cowan then proceeded to discuss in detail the culture of the various subjects which comprised a vegetable collection as staged at a show, viz., Leek, Celery, Carrot, Beetroot, Parsnip, Peas, Cauliflower, Potato, Shallot, French Beans and Parsley. Some discussion followed, and at the close the lecturer was accorded a hearty vote of thanks.

ROYAL HORTICULTURAL.

October 2 and 3.—The second of the series of Autumn Shows contained a great variety of interesting exhibits. The new Horticultural Hall was filled almost solely with the exhibits of "Ornamental Trees and Shrubs," for which the show was chiefly arranged. The general effect was good. The groups were lightly and attractively arranged, and while the brilliant foliage colour usually associated with autumn was on this occasion lacking, the many fruiting trees and shrubs were very showy. The old hall was devoted chiefly to exhibits of hardy border flowers, somewhat similar to those we saw at the first autumn show; but on the present occasion, the graceful stems of Michaelmas Daisies and the general collections of border flowers were arranged with so much taste and skill as to make a delightful picture. Dahlias and Roses were also shown in abundance in the old hall where, we were pleased to find, space had been spared for two meritorious collections of Orchids. The Orchid Committee recommended two Awards of Merit to novelties. Floral novelties were again rather disappointing, though of more interest and value than last week. Four Awards of Merit were recommended to novelties, although none could be considered of outstanding importance. The Joint Dahlia Committee met and made their usual somewhat lavish selection of novelties for trial at Wisley There were several excellent collections of growing and gathered hardy fruits, but the Fruit and Vegetable Committee had little to occupy its attention.

Orchid Committee.

Present: Mr. Frederick J. Hanbury (in the chair), Mr. Gurney Wilson (Hon. Sec.), Prince Shimadzu, Mr. Fred K. Sander, Mr. J. Wilson Potter, Mr. A. Dye, Mr. T. Armstrong, Mr. Charles H. Curtis and Mr. J. E. Shill.

AWARDS OF MERIT.

Brasso-Laelio-Cattleya Heliolata (*Cattleya Heliodor* × *Brasso-Laelio-Cattleya maculata*).—In this lovely hybrid the flowers are of beautiful texture, all the segments presenting a smoothness seldom seen. The sepals and petals are primrose-yellow with a slightly deeper yellow suffusion in the centre. The rounded, fringed lip is of similar colour, with a large central area of deep, almost orange-yellow. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

Cattleya Helioglow (*C. Golden Glow* × *C. Heliodor*).—A somewhat small but brilliantly-coloured hybrid of pleasing form and golden-orange colour, with a deeper shade over the larger part of the flattish, daintily fringed lip. Shown by Baron Bruno Schröder.

GROUPS, ETC.

In the old hall, Messrs. Sanders staged a group that contained a number of good examples of Odontoglossum grande, various Laelio-Cattleyas, Cattleya Hardyana var. alba, Vanda coerulea, Coelogyne Moorei, V. teres and such quaint subjects as Cycnoches Loddigesii, one with two spikes and four expanded flowers, and one with a spike of a dozen flowers; Brassia brachiata and the tiny-flowered Stigmatostalix radicans.

Messrs. Stuart Low and Co. had a bright display wherein Cattleya labiata was well shown, together with Laelio-Cattleya Mrs. Medo, Brasso-Laelio-Cattleya Oriflamme, of light yellow colour; Oncidium varicosum var. Rogersii, Arachnanthe Clarkei, Vanda Stangeana, of brownish hue; the rare, small, but beautiful Phalaenopsis Esmeralda, with Miltonia Clowesii, and M. spectabilis var. Moreliana.

Robert Paterson, Esq. (gr. Mr. Merry), showed a fine plant of Cattleya Profusion, Paterson's variety, with five big blooms on one spike. This was of lighter colour than usual, with a pair of white blotches towards the base of the purple lip. Gus Meyer, Esq. (gr. Mr. Cottam), Woldingham, showed two species of Mormodes provisionally named M. Buccinator and M. luxatum.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mr. E. R. Janes, Mr. James B. Riding, Mr. J. T. West, Mr. Donald Allan, Mr. A. E. Vasey, Mr. C. F. Langdon, Mr. G. W. Leak, Mr. D. B. Crane, Mr. R. Findlay, Mr. Charles E. Pearson, Major George Churcher, Rev. H. Rollo Meyer, Mr. W. B. Gingell, Mr. M. C. Allwood, Mr. William Howe and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair) Mr. E. A. Bowles, Mr. G. Reuthe, Mr. F. G. Preston, Mr. C. Hiatt Baker, Lady Beatrix Stanley, Mr. L. R. Russell, Mr. R. C. Notcutt, Mr. A. Bedford, Mr. Gerald W. E. Loder, Mr. G. Yeld, Sir William Lawrence, Bt., Mr. T. W. Taylor, Mr. E. H. Wilding, Mr. Eric Marsden-Jones, and Mr. N. K. Gould, Secretary.

AWARDS OF MERIT.

Cornus Mas.—The award to this well-known hardy spring-flowering shrub was given on account of its showy bright red fruits which were borne in abundance on the branches. Shown by the Director, Botanic Gardens, Cambridge.

Ceanothus Autumn Blue.—This vigorous, bushy shrub is stated to have been derived by crossing C. thyrsiflorus with C. Indigo. In general habit the new variety is much like the former species, but shows the inflorescence of the latter in the longer-stemmed and more graceful panicles of deep sky-blue flowers. We were informed that the shrub is quite hardy. Shown by Messrs. Burkwood and Skipwith.

Chrysanthemum Lido.—A shapely market, Japanese variety of golden-bronze colour.

Chrysanthemum Mrs. Sarah Knight.—A larger, flatter flower. The mauve-flushed florets are broad, and the spathulate tips incurve slightly. Both varieties were shown by Mr. H. Shoesmith, junr.

Joint Dahlia Committee.

Present: Mr. H. B. May (in the chair), Mr. J. F. McLeod, Mr. A. Turner, Mr. D. Campbell, Mr. J. B. Riding, Mr. J. T. West, Mr. J. Emberson, Mr. A. E. Vasey and Mr. D. B. Crane.

FOR TRIAL AT WISLEY.

The following new Dahlias were selected by this Committee to be included in the Wisley Dahlia trials.

Phyllis Wheaton.—A charming miniature Paeony-flowered sort with waved, bright rose-pink petals, cream at the base. Shown by Messrs. J. Cheal and Sons, as also were the following.

Bognor Star.—An attractive flower, rich rose-pink, shaded old gold.

Felbridge Star.—Another bright Star Dahlia, golden-yellow, overlayed with orange.

Aurora.—A pale terra-cotta miniature Paeony-flowered Dahlia of good form. Shown by Messrs Wm. Wood and Son.

Albion.—An attractive, pale cream, Paeony-flowered sort. Shown, with the following, by Messrs. Burrell and Co.

Edna.—Of the same type as the above, with deep rose-coloured petals tipped with white.

Cedric.—A deep velvety-crimson Paeony-flowered Dahlia of very compact form, with reflexed, curled petals.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. J. Cheal, Mr. W. H. Divers, Mr. F. Bostock, Mr. J. C. Allgrove, Mr. E. A. Laxton, Mr. G. Kelf, Mr. J. Wilson, Mr. R. H. Hall, Mr. A, Poupart, Mr. F. Jordan and Mr. A. N. Rawes, Secretary.

No novelties of note were shown before this Committee, although many fruits were received for naming.

Awards by the Council.

Gold Medals.—To Mr. G. Reuthe, for shrubs; and to Mr. J. C. Allgrove, for fruits and fruit trees.

Silver-gilt Hogg Medal.—To Messrs. G. Bunyard and Co., for fruits.

Silver-gilt Flora Medal.—To Messrs. J. Cheal and Sons, Ltd., for trees and shrubs.

Silver-gilt Banksian Medals.—To Messrs. Alex. Dickson and Sons, Ltd., for Roses; Messrs. Maxwell and Beale, for Heaths; Mr. R. C. Notcutt, for trees and shrubs; Messrs. D. Prior and Son, Ltd., for Roses; Mr. J. B. Riding, for Dahlias; and to Messrs. R. Wallace and Co., Ltd., for trees and shrubs.

Silver Hogg Medal.—To Messrs. Laxton Bros., for fruits and fruit trees.

Silver Flora Medals.—To Mr. T. Bones, for Michaelmas Daisies; Messrs. Ben. R. Cant and Sons, Ltd., for Roses; Messrs. Dobbie and Co., Ltd., for Gladioli; The Donard Nursery Co., for shrubs; Messrs. Fletcher Bros., for Conifers and shrubs; the Gayborder Nurseries, for Michaelmas Daisies; Messrs. Robert Green, Ltd., for Bay and Box trees; Messrs. Hillier and Sons, for trees and shrubs; Messrs. G. Jackman and Son, for Clematises; Messrs. Jarman and Co., for Dahlias; Messrs. B. Ladhams, Ltd., for shrubs and herbaceous plants; Messrs. L. R. Russell, Ltd., for Clematises and other shrubs; Messrs. T. Smith and Son, for trees and shrubs; Messrs. D. Stewart and Son, Ltd., for trees, shrubs and Conifers; Messrs. Sanders, for Orchids; Messrs. R. Veitch and Son, for trees and shrubs; Messrs. J. Waterer, Sons and Crisp, Ltd., for trees and shrubs; Mr. W. Wells, junr., for Michaelmas Daisies; and to Messrs. Wm. Wood and Son, Ltd., for trees and shrubs.

Silver Banksian Medals.—To Messrs. Allwood Bros., for Carnations and Pinks; Messrs. Bakers, Ltd., for shrubs and Conifers; Mr. E. Ballard, for Michaelmas Daisies; Messrs. R. H. Bath, Ltd., for Gladioli; Messrs. W. Blom and Son, for Colchicums; Messrs. G. Bunyard and Co., Ltd., for Conifers and other trees and shrubs; Messrs. A. Charlton and Sons, for trees and shrubs; Mr. J. W. Forsyth, for early-flowering Chrysanthemums; Mr. S. J. Goodliffe, for herbaceous plants and shrubs; Messrs. Harrods, Ltd., for Box and Bay trees; Mr. H. Hemsley, for trees and shrubs; Messrs. Hillier and Sons, for Conifers; the Hollambys Nurseries, for ornamental vines and shrubs; Messrs. Isaac House and Son, for Scabious and Kniphofias; Messrs. Stuart Low and Co., for Carnations; Messrs. Stuart Low and Co., for Orchids; Messrs. Keith Luxford and Co., for early-flowering Chrysanthemums; Mr. J. H. Pemberton, for Roses; Messrs. E. J. Redgrove and Son, for herbaceous plants; Messrs. J. Robinson and Son, for rock garden and herbaceous plants; and to Messrs. Wm. Wood and Son, Ltd., for Michaelmas Daisies.

Flora Medals.—To Mr. W. J. Marchant, for trees and shrubs; and to Messrs. J. Scott and Co., for shrubs and Conifers.

Banksian Medals.—To Messrs. G. and A. Clark, Ltd., for herbaceous plants; Messrs. G. and A. Clark, Ltd., for trees and shrubs; Messrs. Wm. Cutbush and Son, Ltd., for shrubs; Messrs. E. F. Fairbairn and Sons, for Phloxes; Mr. J. Golding, for Scabious; Mr. H. Hemsley, for rock garden plants; Mr. Gavin Jones, for herbaceous plants and shrubs; Mr. John Klinkert, for clipped Box trees; Messrs. H. Langridge and Co., for Dahlias; Messrs. Stuart Low and Co., for Conifers and shrubs; Messrs. Patricks, for Conifers and shrubs; Mr. Amos Perry, for hardy plants; Mr. F. Rich, for Michaelmas Daisies; Messrs. Rich and Cooling, for herbaceous plants; Mr. Charles Turner, for Dahlias; and to Mr. W. Yandell, for early-flowering Chrysanthemums.

⁂ The report of this show will be continued in our next issue. — Eds.

The following awards have been made to the undermentioned flowers and vegetables by the Council of the Royal Horticultural Society after trial at Wisley.

Herbaceous Veronicas.

AWARDS OF MERIT.

(8) *rupestris*, sent by Messrs. John Forbes, Ltd., and (14) *prostrata* (synonymous with rupestris) by Messrs. J. Kelway and Sons; (9) *prostrata var. alba*, by Messrs. G. Arends; (19) Shirley Blue, by Messrs. Den Ouden; (21-24), *Royal Blue*, by Messrs. Den Ouden, Messrs. John Forbes, Ltd., Messrs. J. Kelway and Sons, and Messrs. Barr and Sons; (26) *austriaca*, by Messrs. John Forbes, Ltd.; (37, 38), *gentianoides*, by Messrs. John Forbes, Ltd., and Messrs. Den Ouden; and (57) *longifolia*, sent by Messrs. Barr and Sons.

HIGHLY COMMENDED.

(11) prostrata var. pallida, sent by Messrs. G. Arends; (25) True Blue, by Messrs. Barr and Sons; (30) incana, by Messrs. Barr and Sons; and (51), Blue Peter, sent by Mr. W. A. Collier.

Delphiniums.

AWARDS OF MERIT.

Ann Baker, sent by Messrs. Baker, Ltd.; *Mrs. Newton Lees*, by Messrs. Blackmore and Langdon; *Dawn*, by Mr. Spencer; *Cambria*, by Mr. Spencer; and *Sir Douglas Haig*, sent by Messrs. Blackmore and Langdon.

Perennial Gaillardias.

HIGHLY COMMENDED.

(1) Gloria, (2) Rownham's Queen, and (5) maximum var. triumphans, all sent by Messrs. B. Ladhams, Ltd.

Annual Poppies.

AWARDS OF MERIT.

(1) *Taplow Pink* (somniferum), and (2) *New Double Queen*, both sent by Messrs. Barr and Sons.

Bearded Irises.

FIRST CLASS CERTIFICATE.

Class IVb.—(372). *Souvenir de Madame Gaudichau*, sent by Messrs. R. Wallace and Co., Ltd., and Mr. G. P. Baker.

AWARDS OF MERIT.

Class II Aa(1).—(990) *Blue Chintz*, sent by Mr. F. Burton.

Class IVa.—(940) *Sir Michael*, sent by The Orpington Nurseries Co. Ltd.; (178) *Yeoman*, by The Orpington Nurseries Co., Ltd.; and (965) *Rhein Traube*, sent by Messrs. John Waterer, Sons and Crisp, Ltd.

Class IVb.—(189) *Abdera*, sent by Mr. Amos Perry; (345) *Centurion* and (640) *Lent A. Williamson*, by The Orpington Nurseries Co., Ltd.; and (997) *India*, sent by Mr. G. L. Pilkington.

Class IVc.—(327) *Romola*, sent by The Orpington Nurseries Co., Ltd.

Class Va.—(396) *Mlle. Yvonne Pelletier*, sent by Messrs. Cayeux; (414), *Norma*, by Mr. Amos Perry; (419), *Bluet*, by The Orpington Nurseries Co., Ltd.; (431) *Benbow*, by Mr. A. J. Bliss; (448) *pallida var. dalmatica*, by the R.H.S., Messrs. John Forbes, Ltd., and Messrs. R. Veitch and Son; and (904), *pallida*, *Shotsham variety*, sent by The Orpington Nurseries Co., Ltd.

Class Vb.—(439) *Harmony*, sent by The Orpington Nurseries Co., Ltd.; and (466) *Parc de Neuilly*, sent by Messrs. Barr and Sons.

Class Vc.—(484), *Aphrodite*, sent by The Orpington Nurseries Co., Ltd.; and (485) *Mrs. Marion Cran*, sent by Mr. Amos Perry.

Class VIa (1).—(574) *Nemoralia*, and (590) *Hemodus*, sent by Mr. Amos Perry.

Class VIc (1).—(656) *Lord Lambourne*, sent by Mr. Amos Perry; and (691) *Bruno*, sent by Messrs. R. Wallace and Co., Ltd.

Class VIc (2).—(672) *Mr. H. F. Bowles*, sent by Mr. Amos Perry; and (684) *Iris King*, sent by Messrs. Barr and Sons, and by Mr. Amos Perry.

Class 7c.—(831) *Rialgar*, sent by Miss Sturtevant.

Class 7d.—(747) *Flaming Sword*, sent by The Orpington Nurseries Co., Ltd.

Class 8a.—(1014) *Gold Imperial*, sent by Miss Sturtevant.

Class 8b.—(834) *Flutter-by*, sent by Miss Sturtevant.

Cabbage Lettuces.

AWARDS OF MERIT.

(60) *Unrivalled*, sent by Messrs. Middlehursts, and (61) *Market Favourite or Unrivalled*, by Messrs. Clucas (alike); (69) *Konfit*, by Messrs. Daehnfeldt and Jensen, and (76) *Yellow Longstanding*, by Messrs. Heinemann (alike); and (106, 107, 108, 109) *Continuity*, sent by Messrs. Daniels Bros., Messrs. W. H. Simpson, Messrs. Barr and Sons, and Messrs. Dobbie and Co.

HIGHLY COMMENDED.

(15) New York, sent by Messrs. Cooper; (16) New York selected, by Messrs. Finney; (18) Neapolitan, by Messrs. Dobbie and Co.; (19) Wonderful or New York, by Messrs. Clucas; (20 to 25) Wonderful, by Messrs. Dobbie and Co., Ltd., Messrs. Morris, Messrs. Webb and Sons, Ltd., Messrs. Middlehursts, Messrs. Daehnfeldt and Jensen, and Messrs. Harrison; and (26) Hercules, sent by Messrs. Dobbie and Co. (all alike); (44 to 50) May King, sent by Messrs. Dickson and Robinson, Messrs. Harrison, Messrs. Heinemann, Messrs. Clucas, Messrs. Middlehursts, Messrs. Olsen and Messrs. Zwaan and van der Molen; (52) *Paragon*, sent by Messrs. E. Webb and Sons, Ltd.; (53) Trocadero, by Messrs. Nutting, and (104) Big Boston, by Messrs. Burpee (alike); (54) White Big Boston, sent by Messrs. Burpee, and (74) Bohemia, by Messrs. Heinemann (alike); (67) Best of All, by Messrs. Heinemann; (79 to 82) Perfect Gem, sent by Messrs. R. Veitch and Son, Mr. Dawkins, Messrs. Nutting and Messrs. James Carter and Co.; (85, 87, 88), Wayahead, sent by Mrs. Burpee, Messrs. Barr and Sons, and Messrs. James Carter and Co.; (94) Defiance Long Stander, sent by Messrs. Clucas; (110) Californian Cream Butter, by Messrs. Burpee; (140, 141, 143, 144, 145), Tom Thumb, sent by Messrs. Morris, Messrs. W. Simpson, Messrs. Speed, Messrs. Olsen, and Messrs. Dobbie and Co., and (147, 148), Tom Thumb Selected, sent by Messrs. E. Webb and Sons, Ltd., and Messrs. Barr and Sons (all alike).

COMMENDED.

(91) Distinction, sent by Messrs. Dickson and Robinson; (123) All the Year Improved Round, sent by Messrs. Cooper; (124 to 133) All the Uear Round, sent by Messrs. Cooper, Messrs. Finney, Messrs. W. Simpson, Messrs. Clucas, Messrs. Middlehursts, Messrs. Cullen, Messrs. R. Veitch and Son, Messrs. Nutting, Messrs. Barr and Sons and Messrs. Dobbie and Co.; (135) All the Year Round re-selected, sent by Messrs. James Carter and Co.; (136) Criterion, by Messrs. E. Webb and Sons, Ltd. (all alike); (149) Winter Density, sent by Messrs. Nutting.

Tomatos.

AWARDS OF MERIT.

Radio, sent by Messrs. W. H. Simpson, and *Essex Wonder*, sent by Messrs. Dobbie and Co., Ltd.

READING GARDENERS'.

The first fortnightly meeting of the autumn session was held in the Abbey Hall, on Monday, September 23, when the President, Mr. Frank E. Moring, presided over a very large attendance of members.

Unfortunately, the lecturer, Mr. S. E. Smallridge, was prevented from attending by illness, but Mr. E. J. Dore, at a short notice, kindly filled the breach, and gave a very useful and practical talk on the herbaceous Calceolaria. He described very fully the treatment of these beautiful greenhouse plants from seed-sowing to the flowering period. Soils and manures, as well as diseases and pests were ably dealt with. An excellent discussion followed, sustained by Messrs. Blackwell, Gower, Cook, Reeves, Reed, Waite, Simmons, Goddard, Young, Clacy and Dearlove.

The exhibits in the two sections were quite a feature.

In the competitions arranged for the evening, the following were the results :—

For three vases of flowers, three distinct kinds, outdoor grown, the first prize was awarded to Mr. A. W. Gower, The Gardens, Calcot Grange; second, to Mr. A. Manley, The Gardens, Highfield, Heckfield; and third, to Mr. T. F. Packer, Collis Road, Reading. For a vase of Roses there was only one entry, but Mr. F. W. Rabbetts, The Gardens, Bulmershe, Earley, richly deserved the first prize awarded for the beautiful blooms staged.

In the non-competitive section, several excellent exhibits were staged, no fewer than five First Class Certificates being awarded—quite a record.

The Dowty's Rosery, Elvenden Lane, Wokingham, had a magnificent stand of Roses, all first-class blooms for so late in the season, such varieties as Shot Silk, Mrs. H. Bowles, Golden Ophelia, Etoile de Holland, Madame Butterfly, Betty Uprichard, Los Angeles, and Roselandia being prominent. (F.C.C. and congratulations of the Association). By the kindness of Mr. Dowty, these flowers were sent to the hospital after the meeting. Mr. T. Waite, Whitley Wood Lane, Reading, exhibited a collection of Michaelmas Daisies, Pompon Dahlias and Carnations (F.C.C.) Mr. A. W. Gower showed three dishes of splendid fruits namely, Sea Eagle Peaches, Coe's Golden Drop Plums and Worcester Pearmain Apples. Mr. E. Blackwell, The Gardens, Foxhill, Reading, received two First Class Certificates, one for very fine bulbs of Ailsa Craig Onions, and the other for some very fine examples of outdoor-grown Peaches, Sea Eagle and Princess of Wales.

ROYAL SCOTTISH ARBORICULTURAL.

Aberdeen Branch.

One of the most delightful and successful excursions ever enjoyed by the members of this branch took place on Saturday, September 28. The venue was the beautiful woodlands of Ballogie on Royal Deeside, Aberdeenshire, owned by Colonel R. J. Nicol. Set like a gem in one of the most beautiful districts of Scotland, Ballogie was looking its very best, the glorious sunshine and the autumnal tints on the trees forming a picture that must long remain in the memories of the visitors.

Led by Colonel Nicol and his forester, Mr. J. R. Bell, the company, numbering over fifty, was a most representative one, and included Lord Forbes, President of the Branch; Sir Sydney J. Gammell, of Countesswells; Colonel Lilburn, of Coull; Colonel A. H. Farquharson, of Invercauld; Mr. John Michie, M.V.O., erstwhile commissioner and head forester, Balmoral Castle; Messrs. James Walker, Duncairn; J. A. Anderson, Fettercairn; Johnston Edwards, Balmoral Castle; E. C. Duthie, Aberdeen; and Mr. Robert Adam, Secretary of the Branch, etc.

To the practical and expert woodman, the Ballogie woodlands make an exceptional appeal, for here are found lessons and statistics not often enough found on wooded estates. Meticulous records are kept which enable the visitor to see at a glance the history, plantings, costs, and species of trees of every wood on the estate. There are over 4,000 acres of woodlands on the estate, mostly under Scots Pine and Larch.

Starting on their tour, the members were first shown a specimen of a London Plane, supposed to be the only one in Aberdeenshire or Kincardineshire. It looked remarkably healthy and appeared well pleased with its strange neighbours and habitat. The Green Bank Wood, facing the river Dee as it meanders through the estate, was next visited; it comprises a fine, healthy young plantation, the higher parts planted with Scots Pine and the lower with Larch. The advantages derived from a fairly heavy thinning were seen at Carlogie Wood, some two hundred acres in extent. Here Colonel Nicol explained that his late father received 1s. 0½d. per foot for Scots Pine cut from this wood before the war—considered a record at that period. At Craigmore Wood was seen an object lesson on the planting activities now practised on the estate. Started in 1922-1923, 207 acres of Scots Pine, without any mixture, have been planted at a cost of £3 13s. 7d. per acre. The young trees look remarkably well. Getting on to the drive to Ballogie House, the party found several monarchs of the woodlands worthy of their admiration, including a Sitka Spruce with a girth at five feet up of fourteen feet, an increase of two feet three inches since 1912, when it was last measured. One fine Scots Pine, girthing twelve feet eight-and-a-half inches, with a clean bole of forty feet six inches, and standing 110 feet high, evoked much admiration. At this point a controversy arose as to the identity of two superb Firs. Colonel Nicol explained that when the parent society last visited Ballogie a keen difference of views arose as to what the Firs were. Then three different views were expressed, and later an outside expert was consulted by the Colonel. According to this expert, the views of all the others were entirely wrong, and he gave the opinion that the trees were, respectively, an Abies grandis and an A. amabilis. Mr. Michie, who was also present at the origin of the controversy, reiterated the opinion he expressed in 1912, that one of the trees was A. Nordmanniana.

After lunch, a business meeting of the Branch was held, when Lord Forbes expressed the great gratification the party felt at being allowed to visit such a wonderful forestry estate. There are few estates in this county or, perhaps, in Scotland, he said, where there are better preserved records, or which are so fortunate in having a proprietor who takes such an endless amount of trouble to maintain them as Colonel Nicol does at Ballogie. Lord Forbes also paid a warm tribute to Mr. J. R. Bell, the forester, for the fine part he is playing in the Ballogie woodlands. Colonel Nicol made suitable reply.

The afternoon was devoted to a ramble over the estate, visits being paid to a fifteen-acre plot set apart entirely for the cultivation of Corsican Pine, the nurseries, some fine examples of naturally regenerated Larch, etc. And thus came to an end what could truly be described as "a perfect day." These feelings Mr. John Michie aptly voiced in the vote of thanks he proposed to Colonel Nicol, and which was enthusiastically passed by the company.

Obituary.

Mrs. Edwin Beckett.—The news of the sudden and totally unexpected death of Mrs. Edwin Beckett has come as a great shock to us and to all friends who have received the sad news. Mr. and Mrs. Beckett enjoyed a short holiday at Brighton, and were just ready to begin the return journey to Aldenham, when Mrs. Beckett succumbed to a sudden attack of heart trouble. After a period of over fifty years of married life, this sudden bereavement is an almost overwhelming one for the veteran gardener and exhibitor—Mr. Edwin Beckett, V.M.H.—whose connection with the famous gardens at Aldenham House, Elstree, is a matter of general knowledge among horticulturists, all of whom will join with us in deepest sympathy with him in his sad and irreparable loss.

ANSWERS TO CORRESPONDENTS.

Fruit Tree Roots Diseased.—*J. R.* The fruit tree roots are covered with the hyphae of a saprophytic fungus, so that one cannot diagnose the real cause of the trouble. As your losses in fruit trees are so general and widespread, the cause is probably due to the soil, which appears to be sour and badly drained. The material and information submitted are so scanty that a satisfactory reply to your queries is impossible. Send further material of roots and branches taken from a slightly affected tree.

Gladioli Diseased.—*E. P. D.* The Gladioli are suffering from Fusarium wilt disease. See reply to *H. P.* in *Gard. Chron.* of September 6.

Grapes Discoloured.—*W. R.* The Grapes are infected with the fungus, Botrytis cinerea. The primary cause is the production of a static atmosphere due to faulty ventilation. The remedy is to improve upon your present method of ventilation. A constantly moving atmosphere will prevent the formation of drops of water on the berries. Remove and burn all cracked berries.

Names of Plants.—*W. W. W.* Your specimens had been packed too damp, and in consequence had heated, many of them being in a decayed condition, rendering identification impossible; many of your numbers were also detached or undecipherable through the damp. 1, Armeria plantaginea; 2, Saxifraga Aizoon var.; 3, Acaena inermis (?); 4, Thymus Serpyllum var. lanuginosus; 6, Hieracium species; 7, Lysimachia Nummularia; 8, Veronica loganioides; 9, Scabiosa Pterocephala; 13, Geranium species; 15, Artemisia species; 16, Senecio Ledebourii; 17, Eupatorium purpureum; 18, Lycopus europaeus; 19, Astilbe variety.—*D. M.* 1, Sempervivium caespitosum × S. canariensis; 2, Cotyledon species; 3 and 6, C. secunda (syn. Echeveria secunda); 4, C. secunda var. major; 5, C. clavifolia; and 7, Rhodostachys pitcairniaefolia.

Oak Twigs with Galls.—*E. D. W.* The gall on the Oak shoots is a common one, usually known as the Hop or Artichoke gall. It is set up by one of the gall wasps or Cynipidae, Andricus pilotus var. fecundator. The general health of the tree is unaffected by the presence of these galls.

Peach Diseased.—*E. P. R.* The Peach fruit is affected with a fungus disease, Cladosporium carpophilum. Pick off and burn all scabbed fruits at once, and spray the fruits soon after forming, and again in June, with Bordeaux mixture.

Plum Leaves infested with Gall Mites.—*G. R. N.* The Plum foliage is heavily infested with gall mites, Eriophyes phloeocoptes. The mites are microscopic in size so that the spiders you see running about on the leaves are in no way connected with the galls. The infested tree should be thoroughly sprayed during the first week in February with lime-sulphur, using one gallon of lime-sulphur to twelve gallons of water.

Tomato Fruits Netted.—*M. M.* The netted marking on the Tomato fruits is due to sunburn during prolonged periods of intense sunshine. Where this phenomenon occurs, the house should be shaded with limewash and varieties with dense foliage grown in preference.

Vine Leaves Scorched.—*F. G. G.* The vine foliage is free from the attack of any pathogenic organism. The cause of the burning or scalding may be attributed to defective glass, *i.e.*, glass of uneven thickness or containing bubbles, concentrating the sun's rays on certain spots. Faulty watering and ventilation will produce similar effects on vine leaves.

Communications Received.—J. D.—K. W.—T. P.—J. G.—E. H.—T. T.—H. G.—R. E.—F. K.—F. R. D.

MARKETS.

COVENT GARDEN, Tuesday, October 1, 1929.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.... ...	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums	18 0-24 0
Crotons, per doz.	30 0-45 0
Cyrtomiums ...	10 0-12 0
Erica gracilis, per doz. ...	30 0-36 0
—nivalis, per doz.	30 0-42 0
—the above in 60's, per doz.	12 0-15 0
—the above in thumbs, doz.	8 0—9 0
Marguerites, white, per doz.... ...	12 0-15 0
Nephrolepis, in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentias	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Roses, Polyantha, per doz. ...	15 0-18 0
Solanums, per doz.	15 0-18 0
—60's, per doz.	9 0-10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	6 0—8 0
—cuneatum, per doz. bun. ...	6 0—8 0
Asparagus plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 6—2 0
—short „ ...	0 9—1 0
Asters, white, per doz. bun.	3 0—5 0
—mauve, per doz. bun. ...	4 0—5 0
—pink, per doz. bun.... ...	4 0—5 0
Carnations, per doz. blooms	1 6—3 6
Chrysanthemums, bronze, per doz. blooms	1 6—3 6
—white, per doz. blooms ...	1 6—5 0
—yellow, per doz. blooms	1 6 5 0
—pink, per doz. blooms ...	2 6—5 0
—bronze, sprays, per doz. bun.	4 0—9 0
—white, sprays, per doz. bun.	5 0-10 0
—yellow, sprays, per doz. bun.	6 0—9 0
—pink, sprays, per doz. bun.	6 0—8 0
Cornflowers, blue, per doz. bun.	2 0—2 6
Croton leaves, per doz. ...	1 9—2 6
Ferns, French, per doz. bun.	10 0-12 0
Foliage—	
Ampelopsis leaves, per doz. bun....	4 0—5 0
Hardy Foliage, long, in variety, per doz. bun. ...	4 0-12 0
Forget-me-nots, per doz. bun.	9 0-10 0
Heather, white, per doz. bun.	6 0—8 0
Helichrysum, mixed, per doz. bun.	3 0—4 0
Lilium longiflorum, long, per bun. ...	2 6—3 6
— — short, per doz. blooms	3 0—3 6
—speciosum album, long, per doz. ...	3 0—4 0
— — — short, per doz. ...	2 6—3 0
—auratum, per doz. blooms	4 0—6 0
Lily-of-the-Valley, per doz. bun.	24 0-30 0
Marigolds, per doz. bun. ...	1 6—2 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0-42 0
Physalis, per doz. bun. ...	18 0-24 0
Roses, per doz. blooms—	
—Columbia ...	2 6—3 6
—Richmond ...	1 6—3 6
—Yellow ...	1 6—3 6
—Molly Crawford ...	1 6—2 6
—Mad. Butterfly	1 6—3 6
Scabiosa caucasica, per doz. bun. ...	3 0—5 0
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	3 0—5 0
—white, per doz. bun.... ...	4 0—6 0
—yellow, per doz. bun. ...	4 0—5 0
Stocks, double white, per doz. bun.... ...	4 0—6 0
—mauve, per doz. bun. ...	6 0—8 0
Violets, single, per doz. bun.	4 0—6 0

Remarks.—The general supplies throughout this department are still very heavy and somewhat varied in quality, especially Carnations, the majority being very ordinary, although prices are on the up grade. There is a glut of coloured spray Chrysanthemums, but spray white is more limited and consists of Roi des Blancs and September White. Disbudded blooms, medium size, both white and coloured are more than sufficient for present requirements, larger white blooms being more limited; the principal sorts on offer are Almirante, Alcalde, Debutante, Delight, Pink Profusion, September Glory, Bronze Consul, Yellow King, Yellow Cranford, Pink Cranford and Sanctity. The following Roses are arriving in excellent condition:—Hoosier Beauty, Madame Butterfly, Golden Ophelia, Pink Ophelia, Roselandia, Sylvia and Richmond. L. longiflorum is the most plentiful among Liliums, L. speciosum var. rubrum and L. auratum being somewhat limited, as also is Lily-of-the-Valley. The newest arrivals in this department are single Violets Princess of Wales, but they are not recommended, the present weather conditions being against the successful carriage of the blooms. A few white Camellias are now on offer.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Cox's Orange Pippin, tray	4 0—8 0
—½-bushel case	6 0-15 0
—James Grieve, per tray ...	3 0—5 0
—Worcester Pearmain, per bushel case ...	10 0-15 0
per ½-bushel...	2 0—6 0
—Lord Derby	4 0—6 0
—Warner's King, per bushel ...	4 0—6 0
—Nova Scotian, Cox's Orange Pippin, ½ barrels	20 0-30 0
Bananas, per bun.... ...	11 0-19 0
Grapes, English—	
—Alicante ...	1 0—2 6
—Gros Colmar	1 6—3 0
—Muscat of Alexandria ...	2 0—5 0
—Canon Hall ...	2 0—6 0
—Black Hamburgh, per lb.	1 0—1 6
Grape Fruits ...	25 0-35 0
Lemons, per case—	
—Messina ...	14 0-25 0
—Naples ...	24 0-35 0
Melons, each ...	1 6—4 0
Nectarines, per doz.... ...	4 0-18 0
Nuts, Cob, per lb.	0 4-0 4½
Oranges—	
—Cape Navels, per case ...	18 0-21 0
—Valencia ...	12 0-15 0
—Brazilian ...	12 0-14 0
Peaches, per doz. ...	8 0-18 0
Pears, English—	
—Pitmaston ...	5 0—7 0
—Beurré Hardy	4 0—7 0
—Fertility ...	3 6—4 0
—Conference, per ½-sieve ...	4 0—6 0
—Californian—	
—Beurré Hardy	23 0-26 0
—Comice, per ½-case	14 0-16 0
Pineapples, case	21 0-36 0
Plums—	
—Victoria ...	10 0-14 0
—Damsons ...	5 0—6 0
—President ...	12 0-14 0
—Switzer, per ½-sieve ...	6 0—8 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, French, per lb. ...	— 1 0
—Guernsey, per lb.	0 6—1 6
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-bushel ...	2 0—4 0
Cabbage, per doz.... ...	1 6—2 6
Carrots, per ½-bag, washed	4 0—6 0
Cauliflowers, flat, per doz. ...	2 6—4 0
Endive, French, per crate, 18's and 24's ...	5 0—6 0
Lettuce, Cabbage. 18's, 24's ...	3 0—4 6
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	2 6—3 0
—broilers ...	1 6—2 0
Parsnips, per cwt. ...	4 0—5 0
Potatos, cwt....	3 0—6 0
Tomatos, English, per box of 12 lbs.—	
—pink... ...	3 0—6 0
—pink and white	3 0—6 0
—white ...	2 0—3 0
—blue ...	2 0—3 0
—Guernsey ...	2 0—2 6
—Jersey ...	2 0—2 6
—Dutch, per tray, 28 lbs....	2 6—3 6
Turnips, per doz. bun. ...	4 0—6 0

Remarks.—So far as the English fruit section of the market is concerned, supplies are on the heavy side, and Apples in particular are plentiful. Good fruits of dessert and cooking Apples, however, have sold well, but the quantities of medium and second grade Apples have been assuming record proportions, with resulting poor prices. Some Apples have been available from Canada and the United States, but have not sold well. Hothouse Grapes are quoted at lower rates, the competition of Belgium and Dutch Grapes affecting values obtainable for English Grapes. Some good Peaches are still available, which remain at a comparatively high price level. Plums have been plentiful, but meeting an excellent enquiry; they have not been cheap, and those available from now onwards will continue to sell well. Pears are a slightly improved trade, especially for good specimens. Some Blackberries, both cultivated and hedge fruits, are meeting a good demand. Tomatos have been a better trade, especially the best marks, which are realising improved prices. Cucumbers are a firmer market and better prices are being returned to growers. Mushrooms are available in larger quantities, but values are remaining fairly steady. There is a better tone in the vegetable market, and Peas, Brussels Sprouts and Cabbages are selling well. Salads also remain in good demand, and there is an improved tone in the Potato market, due probably to cooler weather conditions.

GLASGOW.

The tone of the cut flower market was rather steadier during the past week, and in a few instances prices were distinctly firmer. Carnations, which have been plentiful and exceptionally cheap throughout the summer, were in better demand at values ranging from 1s. 9d. to 3s. 6d. per dozen, while Roses were worth from 3s. to 3s. 6d. and Richardias from 4s. to 4s. 6d. per bunch. Chrysanthemums also yielded a better return to the producer; special blooms sold at 3s. to 6s. per dozen; disbudded. yellow, 9d. to 1s. 6d. for 6's; pink and bronze, 9d. to 1s. 3d.; white, 8d. to 1s. 3d.; and sprays (all colours), 2d. to 8d. per bunch. Other quotations were as follow:—Michaelmas Daisies, 3d. to 6d. per bunch; Dahlias, 2d. to 4d.; Asparagus, short, 3d. to 6d.; medium, 9d. to 1s. 6d.; long, 1s. 6d. to 2s. 6d.; A. Sprengeri, short, 2½d. to 4d.; medium, 4d. to 6d.; long, 8d. to 1s. 3d.; Smilax, short, 9d.; medium, 1s. 3d.; long, 1s. 6d. to 2s.

In the fruit market, Victoria Plums continued to command 6d. to 9d. per lb. for first-grade fruits, and 2½d. for second; while Damsons sold at 3d. to 4d.; Blackberries, 5d. to 6d.; cooking Apples, 2d. to 3d.; hothouse Grapes, 2s. to 3s. 6d. per lb.; and Pineapples, 5s. each. Tomatos improved to 6d. to 7½d. per lb., but Jersey produce was cheap at 2d. to 2½d.

Vegetable prices showed little movement either way. Cauliflowers realised 1s. 6d. to 3s. per dozen; Lettuces, 1s. 6d. to 2s. 6d. per box of 15 or 18; Cucumbers, 3s. to 5s.; Guernsey Beans, 8d. per lb.; Runner Beans, 2d. to 3d., and Mushrooms, 2s. 6d.

SCHEDULES RECEIVED.

Highgate and District Chrysanthemum Society.—Forty-second Annual Exhibition at the Highgate Hall, Highgate, on Wednesday and Thursday, November 13 and 14, 1929.—Secretary, Mr. W. Kiy, 16, Holmesdale Road, Highgate, N.6.

Lincolnshire County Agricultural Education and Horticultural Committees.—Potato Show to be held in South Lincs. Engineering Company's Garage, Westlode Street, Spalding, on Thursday, October 24, 1929.—Secretary, Mr. J. C. Wallace, Agricultural Institute, Kirton, near Boston, Lincs.

Taunton and District Chrysanthemum and Fruit Society.—Fifteenth Annual Show of Chrysanthemums, Flowers, Fruits and Vegetables, in the Territorial Hall, Taunton, on Wednesday and Thursday, November 6 and 7, 1929.—Secretary, Mr. W. H. Loosemore, Sundown, Kingston Road, Taunton.

Hull and East Riding Chrysanthemum Society.—Twenty-ninth Chrysanthemum Show, in the City Hall, Hull, on Wednesday and Thursday, November 20 and 21, 1929.—Joint Secretaries, Mr. E. Mennell, 10a, Spring Street, Hull, and Mr. W. O. Hartenfeld, 24, Cranbourne Street, Hull.

Sheffield Chrysanthemum Society.—Forty-second Annual Show, in the Artillery Drill Hall, Edmund Road, Sheffield, on Thursday, Friday and Saturday, November 14, 15 and 16, 1929.—Secretary, Mr. F. B. Hyde, 42, City Road, Sheffield.

Guildford and District Chrysanthemum Society.—Thirty-seventh Annual Exhibition, in the Borough Hall, Guildford, on Wednesday and Thursday, October 30 and 31, 1929.—Secretary, Mr. Walter Miles, Ashbrook, Cadogan Road, Surbiton.

Hitchin Chrysanthemum Society.—Annual Exhibition in New Town Hall, Hitchin, on Thursday, November 14 1929.—Secretary, Mr. W. G. P. Clark, 4, York Road, Hitchin.

CATALOGUES RECEIVED.

Andrew Ireland and Hitchcock, Marks Tey, Essex.—Sweet Peas, Bulbs and Roses.
H. G. Longford, Abingdon, Berks.—Bulbs, Alpine Plants, Polyanthuses, Carnations, Herbaceous Plants.
Clibrans, Altrincham.—Fruit Trees and Bushes, Fruit Trees in Pots, etc.
Clibrans, Ltd., Altrincham.—Roses.
Morse Bros., Melton, Suffolk.—Roses.
R. F. M. Wiltshire, Netley Abbey, Southampton.—Sweet Peas.
Alex. Dickson and Sons, Ltd., Hawlmark, Newtownards, Co. Down.—Roses.
William Power and Co., Waterford.—Bulbs.
Sale and Son, Ltd., Wokingham.—Roses, Fruit Trees, Hardy Shrubs and Trees, Vegetables, Flowering Plants and Bulbs.
Benjamin R. Cant and Sons, Ltd., Colchester.—Roses.
Finney's, Newcastle-on-Tyne.—Bulbs, Roses, Fruit Trees, etc.
John Waterer, Sons and Crisp, Ltd., Twyford.—Rhododendrons, Azaleas, Conifers, Shrubs, Climbers, etc.
William Watson and Sons, Ltd., 31, Nassau Street, Dublin.—Roses.

FOREIGN.

Albert and Emile Jahandiez, Carqueiranne (Var) France.—Cacti, etc.

GARDENING APPOINTMENT.

Mr. Ralph E. Arnold, formerly gardener at Kiftsgate Court, has been appointed gardener to Captain Claude Robinson, M.C., Moor Wood, Cirencester, Gloucester. [Thanks for 2s. for R.G.O.F. Box.—Eds.]

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Gardeners' Chronicle
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Average Mean Temperature for the ensuing week, deduced from observations during the last fifty years at Greenwich, 49·5°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, October 9, 10 a.m. (Greenwich time). Bar. 30·1. Temp. 48°. Weather, Bright.

The Fig Tree.

Ever since the first lady made the first abbreviated skirt from its leaves, the Fig tree has filled a considerable place in the history and affections of the human race. Its economic importance is considerable, especially in warmer countries than our own, but even with us the fruits grown under glass realise good prices in the market, while as an item in a choice selection of dessert fruits, a " first ripe Fig " is a *bonne bouche* for many people. During the present year Fig trees have enjoyed the sunshine, warmth and dry atmosphere experienced, so that even bush trees in the open—the old Brown Turkey variety—have not only yielded fruits in plenty but have ripened large numbers, as in the case of a group of small trees we have noticed in the Boston Manor Park, a former residence of the Clitheroe family, and now the prized possession of the citizens of Brentford. A few folk dislike Figs, but those who have enjoyed fully ripe fruits, plucked and eaten at just the right moment, desire a frequent repetition of that experience. The late Mr. A. F. Barron, when Superintendent of the Royal Horticultural Society's Gardens at Chiswick, knew what was good among fruits; although his sense of smell was almost negligible, his sense of sight was good, while his sense of taste was in excellent order, as shown by his careful selection of the right fruits of the right variety at the right time from among the Figs, of which the Society then had an unique collection grown in pots. His particular favourite was Bourjassote Grise and the fruit must have a " tear in its eye " to be perfect. Our own appreciation of Figs dates from an association with Mr. Barron. But although the Fig tree may not bear its wonted fruits, it is, nevertheless, a useful tree or shrub for the garden, its broad, rich green leaves making it a handsome foliage subject, while its grey-green stems add a note of distinction. Moreover, despite its eastern origin, the Fig tree is wonderfully hardy, and for garden decoration it asks no favours. There is a tall specimen of fine appearance on the railway embankment at the beginning of a deep cutting (going westward) that leads to Earls Court Station on " the Underground " ; it could hardly be in a worse position, yet it flourishes, although whether it fruits or not is known only to the railwaymen. Then, also, further evidence of the hardiness and beauty of the Fig tree as a town plant is to be found along the front of the National Gallery, overlooking Trafalgar Square, where many trees are trained close to the wall and provide a fine screen of foliage year after year. We believe that as a town tree and as a decorative garden plant the Fig has not received the honour due to it. Mr. W. J. Bean, in his *Trees and Shrubs Hardy in the British Isles*, is not kind to the Fig. He tells us that " in the open at Kew the fig gets to be a shrub 6 to 10 feet high, according to the mildness or otherwise of successive winters. The severest frosts cut it to the ground, whence strong young shoots spring up the following summer. Only once or twice in twenty years has it borne palatable fruit." And yet, across the River Thames, a couple of miles north of Kew, quite unsheltered, Fig trees have withstood the rigours of the past winter and the drought of the summer uninjured, and all will agree that 1929 has provided a severe test of hardiness.

Linnean Society's Annual Dinner, 1929.—The Linnean Society will hold its Annual Dinner at the Criterion Restaurant, Piccadilly Circus, London, on Thursday, October 31, at 7.15 p.m. Fellows and Associates may invite friends, and must obtain tickets for the dinner, price 8s. 6d. each (exclusive of wine and attendance, but including coffee), from the Assistant Secretary, not later than Monday, October 28. A Reception by the President, Sir Sidney F. Harmer, K.B.E., F.R.S., will be held in the Rooms of the Society, Burlington House, at 9 p.m. on the same evening.

Orchid Competitions for Amateurs.—At the Royal Horticultural Society's special show for Orchids and other stove and greenhouse plants which will be held on Wednesday and Thursday, October 23 and 24, 1929, the following cups and trophies are offered for award to amateurs :—The Schröder Challenge Cup, presented to the Society by Baron B. Schröder, and offered for award to the best exhibit of Orchids shown by an amateur (groups entered for this cup must be distinct from those entered in competition for the Orchid Challenge Cup presented by the Orchid trade for groups of limited area); a Challenge Cup presented by the Orchid trade for the best group of Orchids staged in a space not exceeding sixty square feet, by an amateur who employs not more than three assistants in his Orchid houses, including the head gardener; a Silver Trophy, presented by the Orchid trade for the best twelve Orchids, not more than two of one genus, exhibited by an amateur who employs not more than two growers, including the head gardener, in his Orchid houses; and a Silver Trophy presented by the Orchid trade for the best six Orchids exhibited by an amateur who employs not more than one Orchid-grower or gardener. Entries for these competitions must reach the Secretary, Royal Horticultural Society, Vincent Square, London, S.W.1, not later than by the first post on Wednesday, October 16. At 3 p.m. on the first day of this show, October 23, a lecture on " Orchid-growing for Beginners" will be given by Mr. H. G. Alexander, V.M.H., who for many years had charge of the late Sir George Holford's famous collection. As it is impossible for Sir Jeremiah Colman, Bt. (Chairman of the Orchid Committee), to be present on this occasion, the Chair will be taken by Mr. Charles H. Curtis, F.L.S.

Fowey Woods, Cornwall.—The beautiful Fowey Woods, which form so delightful a setting to The Headland, at Fowey, have been purchased by the Fowey Town Council, and will be dedicated to the use of the public by the Lord Lieutenant of the Duchy on October 17. As the Headland is already public property, the addition of Fowey Woods will complete and preserve to the public one of the most delightful scenes along the Cornish coast.

Horticultural Conference at Sutton Bonington.—At a recent horticultural conference, held at the Midland Agricultural College, Sutton Bonington, Loughborough, Mr. L. N. Staniland, A.R.C.Sc., of the Long Ashton Fruit Research Station, gave an address on "The Pests and Diseases of the Strawberry Crop." After describing the normal life of the plant, the speaker lucidly described the diagnostic features of the diseases known as Red Plant, Cauliflower, and Blindness or Multiple-crown, and the symptoms of aphis and red spider attacks. The production of small leaves is the chief sign of an unprofitable plant, and in the great majority of cases this has been brought about by aphis attack. It was stated that once severely attacked, the plant never recovers. The speaker then pointed out the practical means of overcoming serious damage. The beds should be rogued at the flowering time and again about October ; all runners should be dipped in nicotine solution before planting, and beds should be sprayed with nicotine or given a dry dusting after the fruits are gathered. A prolonged discussion followed, after which a hearty vote of thanks was accorded Mr. Staniland.

A Proposed Rock Garden Society.—A meeting will be held in the Fruit Committee Room, on the second floor—reached by both lifts—of the new hall of the Royal Horticultural Society, on Wednesday, October 23, at 4 p.m., to discuss the desirability of forming a Rock Garden Society; everyone interested in the subject is invited to attend.

The "Select List of Roses."—Rose growers in general will welcome the publication by the National Rose Society of a new edition of the invaluable *Select List of Roses and Instructions for Pruning*, issued now, instead of in March next, in the hope that it may prove of value to growers intent upon making fresh plantations this autumn. The book has been brought up-to-date, and all new Roses included in the list have been grown by some member of the Publications Committee.

New Jersey Orchids.—The Pine Barrens of New Jersey would appear to be a veritable happy hunting ground for lovers of the fascinating terrestrial Orchids, if one may judge from the extremely interesting, and well-illustrated account, by Mr. J. Fletcher Street, of "The Orchids of the New Jersey Pine Barrens" in the *Year Book* of the Academy of Natural Sciences of Philadelphia, for the year ending December 31, 1928. Mr. Street states that the two elements which seem, with few exceptions, to be necessary for the proper development of these plants, namely, abundant moisture and a high degree of soil acidity, exist almost uniformly throughout that area of New Jersey known as the Pine Barrens. Here are almost uninterrupted Pine forests and large swamp areas bordered with Cedar and deep with Sphagnum-moss—an uncultivated and neglected expanse wherein flourish some twenty or more distinct Orchids. The first to bloom, in May, is Cypripedium acaule, " to be looked for in any Pine woods where the needles lie thick and deep," while in early June, in swamps in the upper part of the State, and in association with Royal Ferns, the rare Showy Lady's Slipper, Cypripedium reginae, is to be found after much searching. The rosy-purple-flowered Arethusa bulbosa, stated to be not uncommon in some of the bogs bordering the coastal marshes, produces its butterfly-like blooms also about the beginning of June, to be followed in about fifteen days by the more common Grass Pink, Limodorum tuberosum (Calopogon pulchellus), which is stated by Mr. Street to prefer moist, sandy situations and the drier edge of Cranberry bogs. The Rose Pogonia, Pogonia ophioglossoides also flowers at this season, and is to be found in swampy Sphagnum-moss beds, while two others of this race are also stated to occur in the Pine Barrens, *i.e.*, Pogonia divaricata and Isotria verticillata, the former limited to the southern areas and the latter only occurring locally, although it is more common further north. The Southern Twayblade, Listera australis, and Loesel's Twayblade, Leptorchis Loeselii, also occur locally. August would appear to be the most important month for the Orchid lover. The most beautiful of the indigenous flowers, namely, Blephariglottis (Habenaria ?) blephariglottis, the White-fringed Orchis, opens its blooms at this season. It is apparently quite common, and asks no more than "wet feet and an open sky." Less common than this are the yellow-flowered species, B. cristata and B. ciliaris, but where these all grow in association there is a tendency for them to hybridise, with the result that B. Canbyi and B. bicolor are likely to be found. The green-flowered species, B. lacera, with its finely-fringed lip, occurs on the borderland of the seashore, where the Pine Barrens and salt marsh merge. Gymnadeniopsis integra occurs occasionally, while G. clavellata, the Green Wood Orchis, is generally distributed, but is seldom found in large colonies; its flowers are cream coloured. The Snowy Orchis, G. nivea, is found in only one locality in the State, and does not flower until the first week in September, when it produces racemes two inches in length of greyish-white blooms. The shy-flowering Rattlesnake Plantain, Peramium pubescens, delights in rich mould in the Pine forests. Four Ladies' Tresses, species of Gyrostachys, are found within the Pine Barrens. G. vernalis and G. Beckii, small-flowered species, prefer rather dry, sandy soil; G. praecox is found in wet bogs, while G. cernua, the latest to bloom and the most beautiful, is discovered by the Orchid-hunter when roaming through "Gentian meadows."

Protection and Prohibition.—An effort to limit the powers of the U.S.A. Secretary of Agriculture to the legitimate sphere of preventing the admission of injurious pests into the United States, has met with failure. As this effort was made by a considerable body of nurserymen, it is evident that Dr Marlatt's prohibitive measures do not find favour with all his countrymen. Prohibition of the kind adopted by the Federal Board is a two-edged weapon, as the American growers would quickly discover if European countries cared to adopt similar measures in regard to the importation of pests on American fruits. We have reason to believe that foundations for such measures are being prepared—on purely protectionist grounds, of course.

Rothamsted Lectures.—The authorities at Rothamsted are again prepared to give a series of winter lectures. These lectures are especially arranged for the benefit and information of Chambers of Agriculture and Horticulture, Farmers' Clubs and similar organisations who may desire to avail themselves of the facilities thus offered. Certain conditions are laid down, but these and all other information regarding the subjects of the lectures may be obtained on application to the Secretary, Rothamsted Experimental Station, Harpenden, Hertfordshire. Mr. H. V. Garner will be the lecturer on Manures and Manuring (eight lectures); Mr. H. G. Thornton will deal with Soil Bacteria, etc., and Mr. D. W. Cutler with the Biological Aspects of Partial Sterilisation of Soils; Dr. W. E. Brenchley deals with Agricultural Botany; Dr. E. M. Crowther, with Agricultural Chemistry, and Dr. B. A. Keen with Soil Physics. Dr. A. W. Imms and Mr. D. M. Morland lecture on Entomological subjects, while Dr. W. B. Brierley, Dr. J. Henderson Smith and Mr. R. H. Stoughton are the lecturers on Plant Diseases.

Mr. Alexander McBean.—Although still a young man, Mr. Alex. McBean, gardener to the Marchioness of Tweeddale, Yester, Gifford, East Lothian, has been a particularly successful exhibitor of fruits during recent years; he has won over fifty first prizes in the past four years at Glasgow, Edinburgh and Southport. In 1928, he won the Southport Hotels Trophy for a table of dessert fruits at Southport; the *Glasgow Herald* Cup for a table of fruits, at Glasgow; and The Thomson Trophy and Gold Badge for six bunches of Grapes, at Edinburgh; during the present year he repeated all three successes and, in addition, won the R.H.S. Silver Medal and the *Gardening Illustrated* Medal—a splendid record. After leaving school, in 1908, Mr. McBean served his apprenticeship at Cantray Gardens, Inverness-shire, and remained there as journeyman, completing a period of five years. His next post was at Altyre Gardens, where he remained in the glass department until, in 1915, he joined the Royal Field Artillery and served for over three years on active service in France. After demobilisation he went to the famous Keir Gardens at Dunblane, where he became foreman under Mr. T. Lunt—a famous Grape-grower. Then followed a period at Sandringham, where he was promoted to fruit foreman, and remained three-and-a-half years before receiving his appointment at Yester in 1924.

MR. ALEX. McBEAN.

National Rose Society's Exhibitions in 1930. During 1930 the National Rose Society will hold a Summer Show in the grounds of the Royal Hospital, Chelsea; a Provincial Show at Nottingham; a Spring Show at Westminster; a Show of New Roses at Westminster, and an Autumn Show at Westminster. The actual dates are not yet forthcoming.

John Cypher Memorial Fund.—The following amounts have been received (up to October 8), and acknowledged, on behalf of the John Cypher Memorial, by the Hon. Secretary and Treasurer, Mr. Charles H. Curtis, 5, Tavistock Street, Covent Garden, London, W.C.2.—Mr. C. H. Cook, Windsor, £1 1s.; Alderman C. Aveling, Southport, £5; Mr. R. Findlay, Wisley, £1 1s.; Mr. W. B. Cranfield, Enfield Chase, £2 2s.; Mr. T. H. Cook, Sandringham, £1 1s.; Mr. G. Benstead, Richmond, Yorks., £1; Mr. W. Greenfield, Leamington Spa, £1; Mr. R. Kitching, Warter Priory, 5s.; Mr. J. Hathaway, Baldersby Park, Ripon, 5s.; Mr. Edwin Beckett, Aldenham, Elstree, £1 1s.; Mr. H. J. Chapman, Wylam-on-Tyne, £1; Mr. T. Pateman, Brockett Hall, Hatfield, 10s. 6d.; Mr. R. Windsor Rickards, Usk Priory, Usk, £2 2s.; Mr. W. J. Mitchell, Westonbirt, Tetbury, 10s. 6d.; Mr. Robert Hayes, Grasmere, £1 1s.; Mr. T. G. Weston, Chatsworth, £1 1s.; Miss A. B. Moore, Bourton-on-the-Water, £2 2s.; Mr. J. J. Guttridge, Sefton Park, Liverpool, £1 1s.; Mr. S. Barker, Clumber, Worksop, £1 1s.; Mr. A. J. Cobb, The University, Reading, £1 1s.; Dr. F. W. Stansfield, Reading, £2 2s.; Messrs. G. H. Richards, Ltd., Borough High Street, S.E.1, £2 2s.; Mr. Roland D. Smith, Weston Hall, Shifnal, 10s. 6d.; Mr. J. Wood Fitzroy Street, W.1, £2 2s; Mr. Amos Perry, Enfield, £2 2s.; Sir Jeremiah Colman, Bart., Gatton Park, Reigate, £5; Miss E. Perkins, Stratford-on-Avon, 10s.; Mr. A. J. Macself, 148, 149, Aldersgate Street, E.C.1, £1 1s.; the Proprietors, *Amateur Gardening*, 148, 149, Aldersgate Street, E.C.1, £5 5s.; Mr. T. Turton, Sherborne, 10s. 6d.; Captain J. Denton, Long Preston, Yorks., £1 1s.; Mr. A. Mason, Newby Hall, Ripon, 4s.; Mr. W. H. Stansfield, Southport, £1 1s.; Mr. E. Wills, Shirley, Southampton, £1 1s.; Mr. H. Hicks, Manchester, £1 1s.; Messrs. Dickson and Robinson, Manchester, £2 2s.; Mr. Ben Ashton, Wolverhampton, 10s.; Mr. F. Jordan, Ford Manor, Lingfield, £1 1s.; Mr. D. M. Campbell, Regent's Park, £1 1s.; Mr. W. H. Wilson, Worcester, 10s. 6d.; Mr. W. Clark, Hesketh Park, Southport, £1 1s.; and Mr. N. F. Barnes, Eaton Hall, Chester, £2 2s. The Hon. Secretary and Treasurer will be glad to receive the fulfilment of the numerous promises made, and donations from the many personal friends of the late Mr. John Cypher and from others who admired his handiwork at the leading horticultural exhibitions, or received some kindness or advice from him during his long career. Cheques should be crossed "John Cypher Memorial Fund."

The Late Mrs. E. Beckett.—Mr. Edwin Beckett, V.M.H., Aldenham House Gardens, Elstree, writes that he has been overwhelmed with letters of sympathy from the host of friends who saw the announcement of Mrs. Beckett's death in *The Gardeners' Chronicle* of October 5. As it is quite impossible for him to reply to all these letters, he hopes the writers will accept this acknowledgment of their expressions of sympathy.

German Horticultural Appointments.—Some very important changes of positions in the official horticultural world in Germany will be of interest to our readers. The chief manager of the well-known nurseries of L. Späth, in Berlin, Herr Maurer, receives the title of Professor, and is to become Director of the Horticultural Science and Experimental Station, Dahlem, Berlin, a position held for so many years by Professor Th. Echtermeyer. Director Kunert, who for many years had charge of the greenhouse department at Sanssouci, Potsdam, retired with a pension on October 1, and Herr Paul Kache, teacher at Dahlem, will fill the position thus vacated. Herr Erwin Barth, the Director of the Parks and Open Spaces of Berlin, has been appointed Professor of Gardening at the Berlin College of Agriculture. This appointment has given great satisfaction among gardening circles in Berlin, as showing that the Minister of Agriculture is determined that the staff in the horticultural department of the college shall be thoroughly versed in the practical, so well as in the theoretical, side of the work.

Casuals and Caterpillars.—Instead of earning a night's board and lodging by stone-breaking, wood-chopping, Oakum-picking, or similarly usual methods, the Berkhamsted authorities recently set their "casuals" the task of gathering caterpillars from the large areas of green vegetables under cultivation in the district. It is reported that bushels of caterpillars have been gathered and destroyed, but whether the men prefer hunting caterpillars to chopping wood does not appear.

Rain.—Over the greater part of our dried-up country rain has fallen in goodly quantity, and the thirsty earth rejoices. Unfortunately, the needed moisture has not always come like "the gentle rain from heaven," for there have been many storms. Nevertheless, gardeners and nurserymen are looking more hopefully to the planting season, although much more rain is needed to thoroughly moisten the soil about the roots of trees and shrubs. Londoners were highly amused at the beginning of the week, when after heavy rains, and indeed, while rain was falling, the Metropolitan Water Board gave notice of its removal of the ban upon the use of water for gardens.

Friday Street Preservation Fund.—Following upon an appeal made through the columns of *The Times*, the sum of £6,152 has been subscribed towards the £8,500 required for the purchase of the Severells Estate, Surrey, Friday Street as a public open space. The property was to have been offered for sale on Monday, September 30, but the owner, Sir Frederick Richmond, extended the option he had given to the organisers of the Friday Street Fund until October 3. As the required amount was not then forthcoming, he again extended the option for another fortnight, by which time it is hoped that the remainder of the £8,500 required will have been subscribed.

Legacies to Gardeners.—The Right Hon. Sir Charles Ernest Swann, Bart., of Hope Lodge, Westbourne Road, Birkdale, who died on July 13, left £50 to Mr. Henry Rimmer, gardener, if still in his service.—Mr. Philipp Ludwig Robert Martin, of Braidley Road, Bournemouth, who died on July 2, left £300 to his gardener, Mr. L. Gage, and an annuity of £52 to Mrs. Cooper, widow of his late gardener.—Mr. Herbert Melville Beddington, of South Audley Street, Mayfair, London, who died on July 22, left £100 to his late gardener, Mr. Langley.—The Rev. Edward Gepp, of Aston Grays, Knowle Road, Bournemouth, who died on July 31, left an annuity not exceeding £40 to his former gardener, Mr. James Redman, and his wife.

The Drying of Potatos.—The Ministry of Agriculture reports in its *Journal* for October, that, at the instance of the Scottish National Farmers' Union, over 2,750 tons of Potatos have been sliced and dried at the Cupar Beet Factory belonging to the Anglo-Scottish Sugar Beet Corporation. The experiment took place late in the season when the Potatos were not in very good condition, owing to the prolonged storage period, and on that account the experiment was not quite so successful as it would otherwise have been. Over two hundred tons have also been successfully treated at the Eynsham factory belonging to Messrs. Sugar Beet and Crop Driers, Ltd.

Orchid Culture in Ceylon.—The cultivation of Orchids in tropical countries is not necessarily attended with that ease which growers in temperate lands might expect; difficulties have to be surmounted, even in Ceylon, as shown by an illustration of an Orchid house at Kandy, reproduced in the current issue of *The Orchid Review*. The majority of Orchids require protection from tropical sunshine, and in the instance under notice this protection is afforded by constructing a house of rope-netting which is covered by the climbing growths of Asparagus plumosus and similar plants.

Popularising Potato Arran Banner.—With a view to extending the popularity of Potato Arran Banner, Messrs. Dobbie and Co., Ltd., held a special competition for this variety at their headquarters at Edinburgh. Five tubers were required and these had to be of uniform size and shape and approximately ten ounces in weight; 2,000 entries were received from growers all over England, Scotland and Ireland, and the competition proved a great success. The first prize (£15) was awarded to Mr. Walter Underwood, The Cliff, Nearchington, Stafford; second price (£10) to Mr. H. T. Boxer, Oakslea, Hawkinge, nr. Fellton; and third prize (£5) to Mr. T. Moffat, Alston, Cumberland.

Dahlia Show at Haarlem.—This year, from September 19 to 22, the eleventh annual Dahlia Exhibition was held at Haarlem, the great success which attended it being partly due to the suitability of the place in which the exhibits were arranged, namely, the big market hall of the Krelage building. The show was opened formally by the Burgomaster of Haarlem, and several speeches were also made, by Mr. E. Th. Witte, the President of the Netherlands Dahlia Society, and Mr. E. H. Krelage, President of the General Bulb-Growers' Federation. The exhibits were numerous, and comprised a very large number of different varieties.

Royal Horticultural Society's Vegetable Exhibition.—The Vegetable Show held in the Royal Horticultural Society's old Hall, Vincent Square, on October 8 and 9 was a good one, and remembering the difficulties imposed by hot and dry weather, the produce exhibited afforded a fine demonstration of cultural skill overcoming unfavourable climatic conditions. Limitations of space compel us to defer our report of this show until next week.

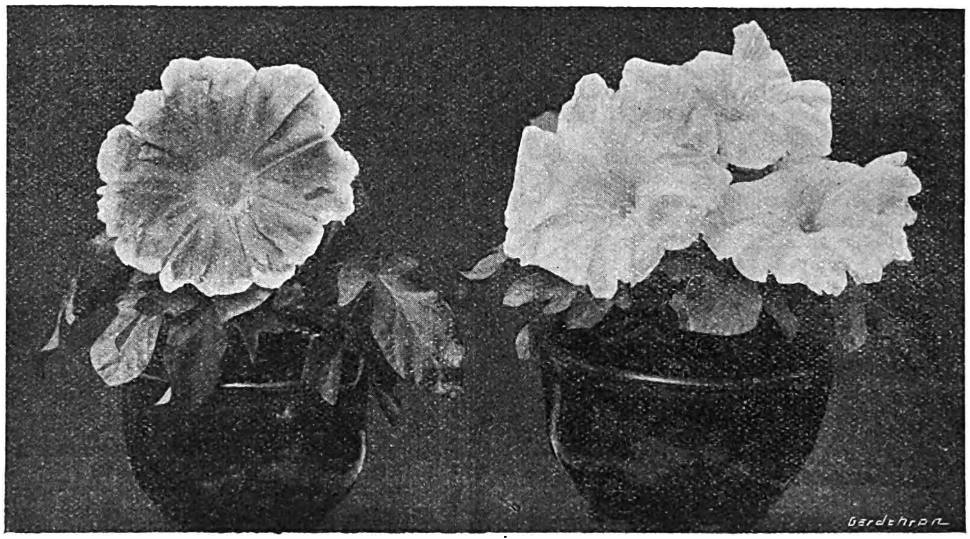

FIG. 134.—JAPANESE MORNING GLORIES.
Left, first prize single-flower plant; right, first prize three-flower plant; at Nagoya Show, July, 1929.
(see p. 282).

Appointments for the Ensuing Week.—MONDAY, OCTOBER 14: Birmingham and Midland Counties Gardeners' Association's lecture. TUESDAY, OCTOBER 15: Winchester Horticultural Society's meeting. THURSDAY, October 17: Ipswich Gardeners' Association's meeting. FRIDAY, OCTOBER 18: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Sulphur and Water, with a little Lime in it v. Mildew.*—In a small vinery here, thirty-four feet long, two vines were planted, one at each end; three shoots were trained horizontally from each other alternately. At the end of five years the shoots from each had nearly reached the opposite ends; they have been spurred and have borne abundant crops every year, a little fire-heat has been used, and the fruit ripens generally about the middle of August. In June, 1852, although it will be observed the vines were trained horizontally, mildew made its appearance in spots all over the house; a little sulphur was used, but the disease increased over every shoot, leaf and bunch, and the Grapes were nearly all useless. Again in June, 1853, the mildew made its appearance, sulphur was more liberally used, but the disease increased, although checked a little and the bunches were all affected. This year, 1854, early in February, the house was washed with lime-water with a little sulphur in it, every available piece of plaster and brickwork, the flue included, being operated on; in June, the same suspicious spots of mildew made their appearance; in the evening, when the flue was just hot enough to bear the hand on it, it was done over with a mixture of sulphur and water, with a little lime in it, and again repeated at a week's end. The mildew entirely disappeared, and the Grapes ripened at the usual time, an excellent crop. The idea of washing the flue with sulphur was taken from an article in your volume for 1853, and I think it is an invaluable receipt. *D. S., Woodbridge, Suffolk. Gard. Chron., October* 14, 1854.

Publications Received.—*Proceedings of the California Academy of Sciences*, XIII, "The Escallonias in Golden Gate Park, San Francisco, California, with Descriptions of New Species;" and XIV, "Studies in the Flora of Lower California and Adjacent Islands," by Alice Eastwood, Curator, Department of Botany. Published by the Academy at San Francisco (no price).—*Journal of Genetics*, August, 1929, Vol. 21, No. 2, edited by R. C. Punnett, M.A., F.R.S. Cambridge University Press, Fetter Lane, E.C.4, price 15s. net.—*El Jardin Botanico Municipal de la Ciudad de Buenos Aires*, by Don Carlos L. Thays, Buenos Aires, Argentine.—*A Guide to the Flora of the Cape Peninsula*, by M. R. Levyns, pp. 284, with 199 illustrations, three in colour. Messrs. Juta and Co., Ltd., Cape Town, South Africa, price 15s. 6d.—*Garden Trees and Shrubs*, by Walter P. Wright, pp. 355, with seventy-four illustrations, twenty-four in colour; Messrs. George Allen and Unwin, Ltd., Museum Street, W.C.; second edition, price 15s. net.—*The Anatomy of Dessert*, by Edward A. Bunyard, pp. 134; Messrs. Dulau and Co., 32, Old Bond Street, W., price 10s, 6d. net.—*Index Kewensis*, Supplement Seven, pp. 260; Oxford University Press, price £3 15s. 0d.—*Report*, 1927-1928, of the Rothamsted Experimental Station, Harpenden, price 2s. 6d.—*Photography as an Aid to the Study of Plants and Plant Problems*, by William C. Davies; Banks Lecture, 1928; Messrs. Whitcombe and Tombs, Ltd., Wellington, N.Z.—*A Survey of the Soils and Fruit of the Wisbech Area*; Research Monograph No. 6 of the Ministry of Agriculture and Fisheries, pp. 71 with three maps, price 3s. 6d.—*Proceedings of the Academy of Natural Sciences of Philadelphia*, Vol. LXXX, 1928, pp. 640, illustrated, and with thirty-one plates; the Academy of Natural Sciences of Philadelphia (no price).—*Year Book of the Academy of Natural Sciences of Philadelphia*, 1928, pp. 90 and eleven plates; Philadelphia (no price).

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Oncidiums.—Specimens of the warm-house, bulbless Oncidiums, such as O. Lanceanum, O. carthaginense, and others, which have just passed out of flower may now require some attention at the roots. Those that require fresh compost or larger receptacles should be repotted now so that the roots may become established in the new compost before the short winter days set in. Clean, well-drained receptacles should be used, and a compost of chopped A.1. fibre and Sphagnum-moss pressed firmly among the roots, keeping the base of the plant just above the pot rim. Pieces of charcoal should be inserted as the work proceeds in order to ensure quick passage of the water, which is required in ample supplies during the growing season. During the winter months, after leaf-growth is complete, only small quantities of water at intervals are required at the roots to keep the leaves in a plump condition until growth commences again in the spring. At this season, these strong-leaved Oncidiums require all the available light and should be grown either suspended from the roof, or in a position near, but not in contact with, the roof glass. If the leaves of this or any other Orchid come into contact with the glass they will quickly become damaged. Oncidium Kramerianum and O. Papilio are warm-growing species, and specimens should produce flowers for a considerable time in succession; if the spikes are allowed to remain it is advisable to remove the scape after four flowers have opened, even on the strongest plants, or they become exhausted and require a very long time to become vigorous flowering plants again; overflowering is often the cause of great loss of plants. Other Oncidiums, such as the sweetly-scented O. tigrinum, O. varicosum and its varieties, O. Forbesii and others of the crispum type, thrive well in an intermediate house, in a position where plenty of light and air can reach the plants. Many are now producing flower scapes, and if slugs are troublesome will require some protection to keep the spikes safe. Various traps should be set and examined regularly—Lettuce-leaves, bran and cut pieces of Potato are good for this purpose—while the plants may be stood on inverted flower pots placed in a saucer of water. Bands of cotton-wool may also be used around the spikes, but these need frequent changing to keep a rough surface. Again, only strong, robust specimens should be allowed to carry flower spikes, as small plants soon become weakened. Plenty of moisture is required while the plants are growing and until the flowers have expanded. After the flowering period is over and growth is complete, only sufficient water is needed to keep the plants in a normal state. The sweetly-scented, small growing O. cheirophorum opens it flowers well in a position near the glass in the cool house, where the blooms will remain perfect for a long period.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Root-pruning.—The roots of trees may be divided into two groups, the strong main roots which serve as anchors to the trees, and hold them firmly in their positions against storms, and the fibrous, feeding roots which are to be found at the extremities of the smaller roots. The strong, main roots, if allowed to grow on unchecked, are generally conducive of rampant top-growth. To bring about fruitfulness in fruit trees, however, it is desirable that these thick roots should be checked in some way, and energy directed to the production of feeding roots. This is the first step towards the formation of fruit buds, flowers and, under favourable weather conditions, fruits. Various methods are employed to bring about this check to exuberant top growth. One of the principal, if not the oldest, is the judicious pruning or shortening of these thick roots. This operation, which is best carried out during October and November, is performed by making a trench eighteen inches wide and the same in depth at a distance corresponding to the spread of the branches. Gradually work away the soil towards the stem with a garden fork to well below the line of the lowest roots. Cut back all thick roots which appear to be travelling for a considerable distance from the tree, and secure all the fibrous feeding roots to be laid in again as the trench is refilled. In cutting back the strong roots the operator should stand in the trench with his back to the tree and, with a sharp knife, make all the cuts in an upward and outward direction. The roots resulting from this cutting will be formed on the upper side and nearer the surface soil. The aim of the cultivator should be to keep the feeding roots as near the surface as possible, where they may obtain air. This can be done by keeping the best feeding material near the surface, and also by top-dressing. A ball of soil, proportionate to the age and six of the tree, should be left intact to cause as little unnecessary check to the tree as possible. But in the case of strong-growing Pears, Plums and Apples on free or Crab stocks, a search should be made beneath the base of the tree for any tap-roots which may have penetrated straight down into the subsoil. These should be cut well back. In the case of young trees, it may be found more economical to lift and replant them, shortening any long roots while doing so. Only when the trees are making rampant growth is this necessary to bring them into a fruitful condition. With large trees, however, it is advisable to spread the operation of root pruning over two seasons by making a trench half-way round the tree the first season, and cutting the roots on that side, and leaving the other side until the following season. Return the same soil to the trench, making it quite firm about the roots, with their tips pointing upwards. If it is considered necessary, a few inches of fresh soil may be put on the surface as an encouragement to the roots to keep there; and a mulching of half-decayed manure to the outward spread of the roots will be found advantageous during the following spring and summer. Root pruning checks excessive growth, equalises the balance of strength between roots and branches, and brings the tree into a fruiting condition earlier than would be the case if left to itself.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Primula sinensis.—Where these plants have been grown in cold frames, the time has now arrived for them to be placed in an airy house where a minimum temperature of 50° can be maintained. These Primulas, when approaching their flowering stage, resent a cold, damp atmosphere, therefore it is wise to transfer them to a house and allow a little gentle heat to circulate through the pipes, and to admit air on all possible occasions. It is not wise to crowd the plants, and where the receptacles are well filled with roots they should be fed with liquid manure obtained from the cowshed; failing this, place cow manure in a bag and allow it to soak for several days before using the liquid. Weak soot-water makes an excellent change of food for this subject.

Euphorbia pulcherrima.—Perhaps better-known as Poinsettia, specimen plants should, by this date, have filled their receptacles with roots, and may now be given a light application of liquid manure, which should be placed in the house in which the plants are growing some hours previous to using it. These plants need some care when applying moisture to the roots, for although they should not be overwatered, it is imperative they should not suffer through lack of moisture, otherwise a loss of foliage may result. A temperature of 60° to 65° should be maintained at this stage of growth. Euphorbia fulgens requires much the same treatment as the above.

Francoa ramosa.—Plants of the Bridal Wreath which have passed out of flower, may need some attention with regards to dividing the roots and repotting. If the work is done now the plants should have time to form roots in the new compost before the shortest days arrive. Francoas require cool treatment at all times, and if the plants are stood in a cool house or frame where frost is excluded, such conditions should suit them. The compost should be of a light nature containing sufficient sharp sand to ensure a free passage of water. After potting, they should be kept close for a short time.

Regal Pelargoniums.—The Regal Pelargoniums which have been cut back and given a slight rest, should have most of the soil shaken from their roots and be repotted into the smallest receptacles that will accommodate them, and in which they may remain during the dull winter months, potting them on into their flowering pots so early as possible in the New Year. Cuttings that have been rooted recently should be potted on so soon as they have formed sufficient roots. After potting, they should be grown in a cool house near the roof-glass, and when roots are active again in the new soil the growths may be pinched back to induce a bushy growth. Aphides are very partial to these Pelargoniums, but if the plants are sprayed or dipped occasionally in Quassia extract they will be kept quite free from this pest.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House.—With the exception of a few late Plums and Pears, the trees in this house will now be clear of fruits, and the season being so favourable for ripening the wood, all the trees should have been removed to the open air. Peaches, Pears, Cherries, Plums and Apples which have ripened their wood should withstand any reasonable amount of frost, so long as they remain dormant, hence the advisability of giving them the fullest exposure. The trees should be protected against birds, and worms prevented from entering the pots, and when, later, placed in position, the spaces between the pots should be packed with Bracken or litter to prevent the soil drying out and the pots being broken by frost.

Potting.—Late trees may still be reduced and potted, picking out the old compost from among the roots with a pointed stick and repotting them in fresh compost. Roots being plentiful, they should fruit well after severe handling, provided they are not to be forced. Young trees which were lifted last autumn, pinched, and specially prepared for potting, may now be taken up and placed in pots varying from eight to ten inches in diameter. All stone fruits and Pears and Apples like fairly heavy calcareous loam, well supplemented with burnt earth, old lime rubble, bone-meal and soot in preference to animal manure of any kind. This compost can hardly be made too firm by ramming if the soil is in right condition. The trees should receive one good watering before being plunged in the open.

Early Pot Figs.—These being liable to injury from cold, they should be placed in a cold house or frost-proof shed when all the leaves have fallen. In this position, if the pots are protected, they may be left for months without water and suffer no injury.

Pot Vines.—The vines in pots intended for starting at the end of November may now be shortened back to their proper length and placed in a position where they can be kept quite cool and sheltered from heavy rains. Any loose surface soil may be removed and when the soil is moist they may be top-dressed with good loam well enriched with bone-meal.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Tree Paeonies.—The Tree Paeonies are rather neglected plants, yet they are quite hardy, although the early young growths are often cut by late spring frosts. Their proper place is in sheltered nooks in the shrubbery or pleasure grounds, where their young, brightly-coloured leaves and gorgeous blooms can be seen to advantage in early spring. The same remarks as to the preparation of the soil apply to these as to the herbaceous sorts, the Moutan Paeonies being even grosser feeders than the herbaceous sorts. Being of slow growth in their young state, patience is required until they become a reasonable size, when they will flower freely, provided the buds escape damage by late frosts.

Routine Work.—Owing to falling leaves, worm casts and decaying flowers, it is now difficult to maintain neatness in ornamental grounds, but as little enjoyment can be derived from an untidy garden, every effort should be made to do so while the fine weather continues. The bright weather we have had during the past few weeks has infused a degree of brightness into the flower beds that has not been exceeded the whole season, and endeavours should be made to maintain this so long as possible. Tender plants that have been used for bedding and which are to be preserved for stock for another year, and which cannot yet be lifted without spoiling the general effect of the flower garden, should be covered every night with some light protecting material. The propagation of plants for use in the flower garden for another year still requires attention. The more tender subjects have been attended to in this respect before this, and the young plants ought now to be in safe quarters, as frost may be expected at any time. Cuttings of such hardy bedding subjects as Calceolarias, Violas and Pentstemons will root freely and winter well—indeed, best—if inserted in a cold frame.

Rambler Roses.—If not already done, cut out all shoots of Rambler Roses that have flowered during the season if there is sufficient young shoots of the current year's growth to furnish the plants for next season, if not, retain the best of the old growths that have flowered this season, and prune back the lateral growths to two or three buds in spring. Tie in all shoots securely now, to prevent damage by autumn and winter storms. Long shoots of dwarf or standard Roses may also be shortened to half their length during the month, to ensure the plants against damage during stormy weather. Many varieties of Roses may be increased readily from cuttings of the current year's growth. These should be taken off with a heel and inserted in a prepared bed of sandy soil, preferable at the base of a wall facing north, where they ought to remain for a year.

Carnations.—Border Carnations that were layered late and were not ready for planting in their permanent places during September, should now be severed from the parent plant and potted either singly into three inch pots or two in a larger pot. A compost that suits them is four parts good, sweet, maiden loam, one part leaf-soil, and one part sharp sand. Place them in a cold frame, water, and shade for a week until they have made some fresh roots, afterwards admitting abundance of air on every favourable occasion.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

French Beans.—Where these are growing in pits or frames they must receive careful attention if satisfactory results are to be obtained. Ventilate the house or frame on bright days, closing it early in the afternoon. Syringe the plants overhead and maintain a growing temperature; support the plants by means of small canes in preference to Birch twigs.

Asparagus.—So soon as the foliage has died down, clean the Asparagus beds thoroughly before applying a mulch of well-decayed farmyard manure or, if that is not available, a mixture of decaying grass and leaves.

Cabbages.—If the spring Cabbages have not been planted, no time should be lost in attending to this work, so as to give them an opportunity to become established before the cold weather sets in. Dust around the plants with soot, lime or spent carbide, to ward off snails, which are troublesome during wet weather.

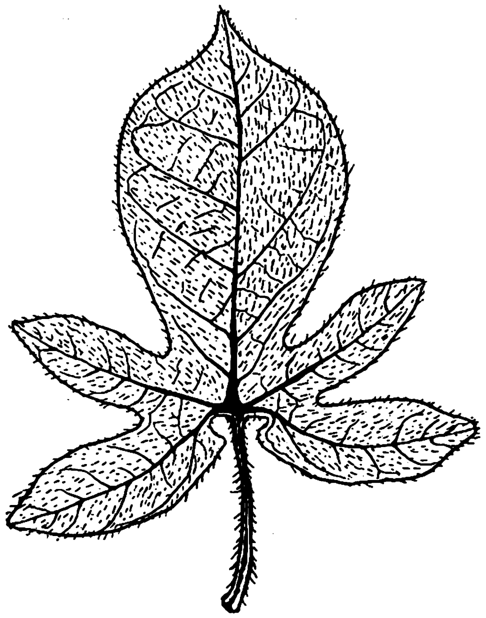

FIG. 135.—JAPANESE MORNING GLORY; LEAF OF THE SEMIBA STRAIN.

(see p. 282).

Tomatos.—Late plants in pots that have been growing outside should now be taken indoors. If four or five trusses of fruits have set pinch out the points of growth to encourage the fruits to swell, and give an application of Clay's fertiliser.

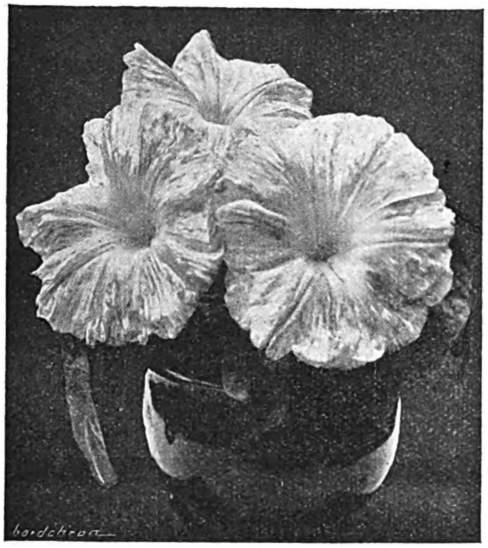

FIG. 136.—JAPANESE MORNING GLORY SEIHA.

An example of the Bonzo-tsukuri training.

(see p. 283).

Winter Spinach.—During dry weather, this crop should be encouraged by frequent stirring of the surface soil between the lines, and make sure the plants are not too close in the rows.

Peas.—If these have finished cropping, the beds may be cleared and the ground dug and planted with Lettuces and Endive, which should prove useful during the early spring months. Late Peas are filling up well and should be assisted with applications of liquid manure every week.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Onions.—Bulbs in process of drying should be looked over occasionally, and all those in a fit state picked out and stored for the winter. It matters little whether they are suspended in bunches or strings, or laid out in a dry loft, so long as dry, cool and airy conditions are maintained. Under such conditions a touch of frost will do no harm; heated structures for storing Onions in should be avoided, as in such premature growth is sure to be encouraged. Under proper conditions transplanted Onions should keep until February, and those sown *in situ* until March or April. Only the loose skins should be removed from the bulbs, along with the roots and part of the tops, as over-cleaning is worse than too little. Any decaying bulbs should be removed directly they are noticed.

Root Crops.—These have now reached maturity, and a dry day should be taken advantage of to have them stored. Carrots, in most cases, may be drawn from the ground without injury, but Beet should be lifted more carefully or bleeding may take place. A spade or digging fork should be used and every care exercised that no roots are fractured in the process. Any soil adhering should be scraped off with the back of a knife or a large wooden label, and the tops removed well above the crown. After an hour or two to dry in the open air they may be stored in a frost-proof shed and covered with fairly dry sand. The cooler the store is kept the better the roots will keep, provided frost is excluded. Salsify and Scorzonera should be treated in like manner, but Parsnips are much better if lifted from the ground as required; when frost threatens, a quantity should be lifted for use until the ground is workable again. Late Potatos should be lifted and stored as severe frosts may be experienced at any time now. Choose a dry day for this work, and pick out all small and diseased tubers as lifting proceeds, leaving the ware Potatos to dry for a few hours, if possible. The tubers may be stored in a cool frost-proof shed if air and light can be kept from them, but if in large quantity, a pit is much the best and safest place for them.

Watering.—As the houses are filled with plants from frames and out-of-doors, extreme care should be taken in watering from now onwards. Soft-textured plants, such as Primulas of all kinds, Cyclamens, Cinerarias, etc., should never be allowed to become very dry at the roots, and when water is given it should be in sufficient quantity to wet the ball of soil completely. All watering should be done before mid-day, and as the days shorten, care should be taken to have no superfluous moisture about the house. A little fire-heat may be employed while the house is open, to dry it up, but, other than during frost, the use of fire heat should be avoided, and a little top air admitted, according to the weather, even during the night. Young growing plants of Schizanthus, Clarkia or other annuals should be sprinkled gently early in the day, when the weather is fine, but the foliage should be kept dry during the night. These and all growing plants should be kept close to the glass, shelves being ideal for this purpose.

Digging and Trenching.—As ground is cleared of crops, plans for the succeeding crop should be made, and the ground treated accordingly. One can hardly go wrong in working the ground deeply for all vegetable crops, but in the application of manure it is different. Where the subsoil is heavy, double digging should be practised, working in opening material of any description at hand, but if sufficient depth of good soil is found, trench by all means. For next year's Onion crop the ground should receive a heavy coating of cow or horse manure, according to the texture of the soil, and if sufficient quantity is available, both spits may be manured; if not, place the manure in the top spit, leaving the surface rough or ridged for the winter.

INDOOR PLANTS.

BRUNSVIGIA JOSEPHINAE.

(The Candelabra Plant.)

Having read with interest various notes in *The Gardeners' Chronicle* on this plant, the following information regarding its cultivation, etc. is written in the hope that it may be of value to those who have experienced difficulty in persuading the bulbs to produce flower spikes. In 1926, six bulbs were secured from a consignment imported direct from South Africa. Strong, healthy foliage was produced in each season of growth, but despite careful attention to watering, feeding and resting, no spikes were produced in 1927 or 1928.

During the autumn and winter of 1928-29, the foliage produced was again exceptionally good, no doubt due to the weekly applications of liquid manure which the plants received. The plants had been growing in a temperature of 60° to 65°, but when the foliage commenced to turn yellow, they were removed to a cooler house where the temperature was 50° to 55°, and placed on a high shelf, about three feet from the glass. From this time onward no water was given.

The first spike appeared during the third week of June, and eventually produced its red, Amaryllis-like flowers, about three weeks later. Four out of the other five bulbs flowered in succession, the last spike being at its best at the end of August.

The main stems of the flower spikes varied from twenty inches to twenty-four inches in height, and the pedicels, carrying single flowers, were from twelve inches to fifteen inches in length. The best plant carried forty-one blooms and was a splendid specimen; it received an Award of Merit at the Royal Welsh Show, held in Cardiff, on August 7, 8 and 9, of this year.

Seed-pods have formed, and some of the seeds appear to be quite sound. Photographs are enclosed of one of the flowering plants, and also of the best specimen, showing the seed-pods.

The grower who has been so successful with this interesting plant is Mr. H. Watkins, gardener to Mrs. Folland, Llynderwi, Blackpill, Swansea, who is well-known in this district as a grower of vegetables for exhibition. *Glam.*

[The photographs were good and portrayed fine plants, but are not reproduced as illustrations have appeared recently.—Eds.].

ARISTOLOCHIA BRASILIENSIS.

This very singular plant is not easily described and perhaps one cannot do better than quote G. Nicholson, who states (under its synonym of A. ornithocephala): "This species may be said to have the head of a hawk and the beak of a heron, with the wattles of a Spanish fowl, which, however, are grey, netted with brown; head of the same colour, veined; and the beak grey."

As I recently saw this plant, draping the roof of a corridor, with its handsome, ample foliage and with numerous flowers—large and grotesque—it is indeed a quaint subject, handsome and pregnant with interest; the cordate, almost reniform, obtuse leaves are quite ornamental and the flowers are produced freely and for a long period during summer and autumn.

A tropical species, the plant thrives in an ordinary warm greenhouse, and like all its family, it loves sunshine, plenty of moisture when growing, and a rich soil. During the winter just sufficient water should be given to prevent the soil from becoming dust-dry, and hard pruning should closely follow the flowering period.

Planted out or grown in a large pot, this weird Aristolochia should invest a structure with interest and with beauty of a somewhat quaint order. A. brasiliensis was introduced from Brazil in 1838. *Ralph E. Arnold.*

LABELLING EXHIBITS AT SHOWS.

If it be permitted to a mere amateur to criticise a show so excellent as that held at the new hall of the R.H.S. on October 2 and 3, there is much that he would like to write upon one aspect of it—namely, the labelling of exhibits.

All the exhibitors deserve praise for the interesting and beautiful collections shown, but many of them cannot be congratulated upon the care with which their labels had been prepared. Apart from the question of following the nomenclature of the Kew *Hand Lists* (upon which they may have their own views), there surely can be no excuse for the carelessness which led to the following labels being put up—and these are just a few noted at random, without any determined search for mistakes :—

Taxus fastigata aurea,
Thuya Lobbi,
Hippophae rhamoides,
Berberis Wilsonii,
Berberis Thumbergi,
Berberis staphina,
Berberis vulglis purpurea,
Pyrus hibrida,
Pyrus tungoides transitoria, and
Liriodendron tulipiferum.

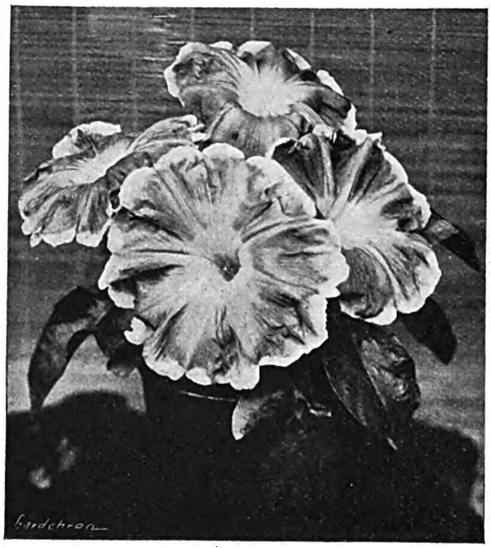

FIG. 137.—JAPANESE MORNING GLORY.
Awarded First Prize at the Nagoya Morning Glory Society's Show.
(see p. 283).

The cream of them all, however, was the label "Viburnum opulus sterile" attached to a glorious clump of fruiting branches of Viburnum Opulus! In justice to the firm responsible, however, it must be stated that the label was at once removed on the mistake being pointed out to them, but as the show had then been open six hours, there is no knowing how many people had been misled.

Generally, the legibility of the labels left a good deal to be desired. Some firms, it is true, employed labels which were beyond reproach for clearness of lettering and for being written in waterproof ink which did not run or smudge as a result of watering. Others, however, had used ordinary ink, and their labels were well-nigh unreadable on the second day, especially where, as was too often the case, the lettering was cursive and not in capital letters. Again, some firms' labels were inscribed in lettering so minute as to be difficult to read at three feet, even to a person of normal sight.

In one case labels were in very plain and bold writing—but in pencil, not ink. As a consequence, they gave rather an unfinished look to the whole exhibit. One particularly interesting exhibit of uncommon shrubs had extremely neat labels, done on a typewriter; but, unfortunately, the ink had run badly after watering, which quite spoilt their pristine beauty.

As it is, plant nomenclature is a big enough problem to the amateur without its being made more difficult by carelessly-prepared labels at shows, and by the attempts of some exhibitors to ruin his eyesight with their curious lettering! It is, therefore, suggested to the Royal Horticultural Society, in all seriousness, that they insist that labels used at shows under their jurisdiction be written in characters easily legible, and in an ink which will not be liable to smudge when the plants are watered. After all, waterproof ink costs very little more than blue-black! *R. C. B. G.*

JAPANESE MORNING GLORIES.

The Japanese Morning Glory, or Asagao, is one of the most popular flowers in our country where Ipomoea hederacea (syn. Pharbitis Nil) was introduced, in small, simple-flowered form, from China some thousand years ago, for medicinal purposes. Since then it has been greatly improved as an ornamental flower and is much appreciated. There are many old poems composed in praise of the Asagao. In the Bunka Era (1804-1817) the Morning Glories became extremely fashionable all over Japan. "Morning Glory fever" spread to all the classes, from the aristocracy and lords to the petty merchants and workmen, each man striving to outdo his neighbour in meritorious varieties and skill of culture. Certainly this "fever" helped to develop the Morning Glories and their culture. But, consequently, the "fever" had attendant ills, as in the Tulip mania in Holland, and the feudal government often cautioned people. In those days and afterwards, the double-flowering varieties, which have considerable interest to the pathologist and others, aroused much attention, and many curious and interesting double forms were raised. They are not now so popular as the large-flowering, single varieties. Thirty or so years ago, the large-flowered, single varieties became very fashionable in Nagoya, where the modern methods of culture and many varieties grown in these days owe much to the enthusiasts in the city. The Semiba strain, which has the largest flowers, originated among them. This epoch-making strain soon overshadowed all others, as it provided vivid colours, selfs or stripes, with a white, broad throat and five-lobed leaves (Fig. 135). The Semiba strain is broadly divided in two groups, namely, those with green leaves and those with yellowish leaves; the former is more vigorous than the other, but the latter is easier to cultivate because it is moderate in growth. Chidoriba, Kuwagataba and many other strains are not so much cultivated now as the superior Semiba strain has taken their place.

There are three well-known styles of training, namely Bonyo-tsukuri, Ando-tsukuri and the style invented among the members of Kyoto-Asagao-Kenkyukai. The first and third are now most popular among lovers of Morning Glories.

Bonya-tsukuri training was invented in Nagoya many years ago and developed by the members of Nagoya Asagao Kai, a leading Morning Glory Society. The methods of culture and training are as follow :—Generally, the seeds are sown between May 5 and 8, in a pan four to five inches in depth, filled with sifted soil that has been used for Chrysanthemum culture; this is surfaced with one-third-of-an-inch of fine, pure sand. The early sowing often fails because of the cold weather. The seeds should be sown one-third-of-an-inch deep, and they will germinate in four to six days, and the day after germination takes place the cotyledons should expand, and that is the time to prick out the seedlings, placing them singly in the flowering pans. Selection is very essential; those having roundish cotyledons with rounded apices should be retained. The potting compost is a mixture of three parts loam, two parts leaf-mould and five parts sand, the last being essential to ensure the free passage of water; every kind of manure should be avoided in the compost, as it damages the root and possibly the cotyledons soon fall—the enthusiasts exercise great care to retain the cotyledons until flowering time.

The potted plants should be exposed to the sun immediately after watering; those that wither are not worthy to be grown; during all stages of their cultivation they should be given sunny, airy conditions, with ample supplies of water, and the resulting growth should be firm and sturdy, which is very important when dealing with the Asagao. If the plants become too firm and sturdy, then an extract made by boiling fishes (avoiding the fatty ones) should be given. Artificial manures are not recommended for the Asagao.

When the Asagao, a climber by nature, has attained a length of several inches and carries seven or eight leaves, and the lower two buds have formed shoots of about two-thirds-of-an-inch in length, the points should be removed, allowing one leaf to remain. This is called the nutriment-absorbing leaf. By stopping the shoots at different times the flowering season is lengthened. Generally, at each axil of the shoot, beginning at the second axil, a flower bud forms. Ten or so days after the first stopping, four leaves are retained on each shoot and the rest are cut off, or five leaves may be allowed to remain provided the flower bud, which forms in the axil of the second leaf, is removed. In the latter case, larger blooms may be expected; in each case the axillary bud of the top leaf should be allowed to develop until the flower bud has attained a moderate size, when the latter should be rubbed off, but the petiole retained. Manuring follows the second stopping; we use a manure called Tamagoe—eight parts of pulverised Rape-cake and two parts pulverised dried bonito are mixed, adding a small quantity of water, and kneaded into pellets as large as a finger's end. That is kept in a tin box until used. Two Tamagoe should be pushed in the pan, just below the surface of the soil. After applying Tamagoe, liquid manure should be given, according to the conditions of growth. The liquid manure is prepared as follows:—In a large bottle or pot, pour twenty litres of water and two litres of Rape-cake; this should be kept sealed up tightly until used. One part of this manure mixed with twelve parts of water should be given every other day at four o'clock in the afternoon.

The first flowers should be expected in two months after seed-sowing. When four flowers on a plant are finished, both shoots should be cut off, retaining the first bud which is formed in the axil of the first leaf on the shoot. Each bud remaining on the shoots soon grows and should be cut back in the same way as already mentioned, retaining four or five leaves. By repeating this method, generally four times, sixteen very large flowers should be produced on each plant. Blooms less than seven inches in diameter are, by the Bonyo-tsukuri training, regarded as unworthy of admiration, but the striped flowers are considered good if they are six-and-a-half inches in diameter.

In the early stages of their cultivation watering once a day is enough, but in mid-summer water should be given twice a day—morning and afternoon—and the soil always should be surfaced thinly with Sphagnum-moss.

The enthusiasts exercise much patience in endeavouring to secure flower buds within the edge of the pan. The photographs (Figs. 136 and 137) show the typical styles of the Bonyo-tsukuri training as practised by well-known experts.

A style now known as the Kyoto-Asagao-Kenkyukai-Shiki was first invented by Mr. Shigejiro Okuda some twenty years ago, and improved by Mr. Eisaburo Gibe, whose enthusiasm and cleverness made this style one of the most popular. Desiring several flowers on a plant at the same time, Mr. S. Okuda, the Hon. Secretary of the Kyoto Morning Glory Society, invented the style, which may be called an improvement on the preceding. The soil recommended is a mixture of five parts leaf-mould, five parts loam and two parts of sand of the size of a large Cyclamen seed. Straw-ash should be added in small quantity. The seeds are sown in the way already mentioned, but at two or three different times, beginning at about May 5, and then once a week afterwards. The very day, or the day after, germination takes place, the seedlings should be planted (ascertaining whether they are true to the colour by means of the young stems) in their flowering pots, not earlier than four o'clock in the afternoon. The first stopping is done when the plants produce eight or nine leaves, retaining six leaves; while if the shoots in the axils of the first and second leaves are vigorous, retain four leaves. The upper leaf in both methods is the nutriment leaf, and its axillary bud is rubbed off. The plant produces three shoots, which should be cut back when they have five or six leaves, retaining two leaves; thus, altogether, six leaves are retained and produce six shoots from their axils, and these may be reduced to three, four or five according to the form one wishes. Retain three or four flowering buds and the top leaf on each shoot, and remove the rest. These shoots should be cut back to the first bud when flowering is finished. The new buds soon develop when the method of stopping just mentioned should be repeated. In this way the second period of flowering is secured. The manures are prepared and used as follow:—Ten parts Rape-cake, two parts Rice-bran, and one part straw-ash are mixed, adding a small quantity of water, and kept in a tin box until required for use. The manure is used when the first stopping is finished, giving a small quantity just under the surface of the soil, but not near the stem. More is applied, according to the condition of the plant, when the second stopping and also the stopping of flowering shoots is finished. When the flower buds show colour very slightly the supply of liquid manure should be stopped. In all stages of their cultivation, rubbing off the unnecessary buds should not be neglected.

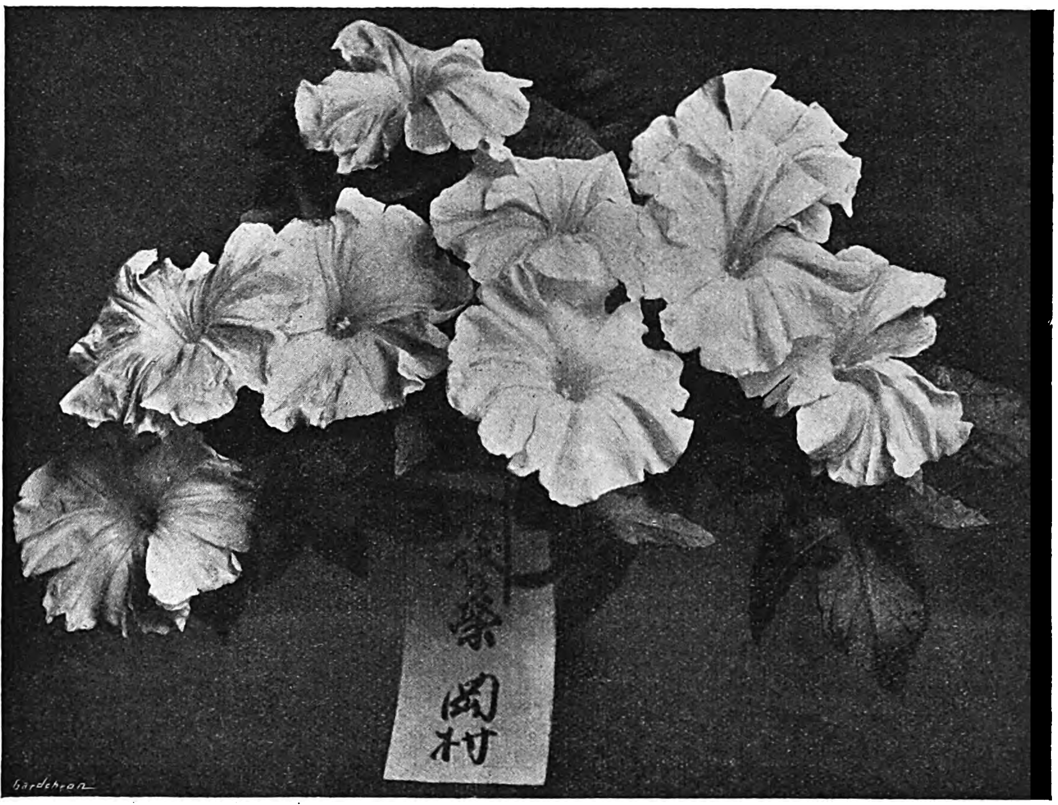

FIG. 138.—JAPANESE MORNING GLORY MIYO-NO-SAKAE.

Awarded First Prize at the Kyoto Morning Glory Society's Show.

The Morning Glory Miyo-no-Sakae (Fig. 138), grown by Mr. Kisaburu Okamura, shows the Kyoto Morning Glory Society's style of culture.

When the large blooms have been admired in their several periods, according to the number of stoppings, the plants are placed in a bed or retained in their pots or pans for seeding. Several tall Bamboo stems are used, and the new shoots allowed to climb up them. These give the blooms from which seeds are saved.

The following are a few of the best varieties cultivated:—Kato-no-Homare, white, beautifully striped with clear crimson, one of the very best; Genroku-Bijin, soft pink, broadly bordered with white; Miyo-no-Sakae (Fig. 138), crimson, streaked with white; Okina-no-Tomo, white, striped with brown; Kumoi, ultramarine; Kwa-O, Cherry-colour, bordered with white; Haku-O, pure white; Uji-no-Tsuki, clear light brown; Fujibakama, lilac; Hinotsukasa, vivid crimson; Ide-no-Tsuki, yellow; and Seiha (Fig. 136), light blue, streaked with white—one of the greatest favourites.

The Ando-tsukuri method of training is popular in Osaka. In the two styles already indicated the climbing nature of the Asagao is suppressed, but in the Ando-tsukuri training the climbing habit is appreciated. Several Bamboo stems, three feet to four feet tall, are placed in each pot and fastened with three wire rings; the plants climb these supports and are stopped when ten to fifteen flower buds have formed. Cutting back the shoots is repeated in due course. Large blooms are not expected, and cultivation is much easier by this method than by the two described.

In our gardens the Asagao is also cultivated as an ornamental climber, supported by Bamboos.

My best thanks are due to Mr. Shigejiro Okuda, of Kyoto, and Mr. Suzuki Yusoan, of Nagoya, well-known experts, for much information on the culture of the Asagao. *K. Yashiroda, Tonosho-kyoku, Kagawaken, Japan.*

TREES AND SHRUBS.

A DWARF GENISTA CINEREA.

Under cultivation, the above species grows rapidly and ultimately attains a height of eight to ten feet, although in a wild state it varies from sixteen inches to two feet eight inches. It is a native of France where it grows on the sides of calcareous mountains. It also inhabits the Iberian Peninsula, Italy and North Africa.

Some time ago I had a branch of this Genista from Miss Willmott, Warley Place, who said it did not exceed three or four feet in height, although of some considerable size. Judging from the branch, it looked aged, for the twigs were densely crowded, and thickly covered with their yellow flowers. These are not borne in racemes as in many of this group of Leguminosae, but in axillary clusters of two to four along the greater part of the length of the twigs. Possibly this may be a dwarf form of the species, which is not unlikely, when the nature of the habitats of the wild plant is considered. The value of the species in gardens is enhanced by its flowering during June and July, after most of its congeners are over. *J. F.*

BERBERIDOPSIS CORALLINA.

Berberidopsis corallina is certainly one of the most beautiful flowering shrubs which have yet been introduced from Chili; moreover, this plant has attracted a considerable amount of interest in recent years, since it has been planted so frequently as to test its hardiness under widely different conditions, unfortunately, only too often with disastrous results.

The name is distinct and well-chosen, indicating its similarity to some of the Barberries, and giving some idea of the colour of the flowers. In fact, Berberidopsis corallina is the only plant of its genus, and may be so closely allied to Berberis as to necessitate a change of name at some future date, a fate which has overtaken so many garden plants in the past. At present it is placed in the family Bixaceae, together with, among others, the Azaras. Incidentally, both these genera are Chilian, and both are present in Valdivia, from which province the subject of this note was introduced nearly seventy years ago.

The growth of B. corallina is inclined to be rambling, the stems being somewhat thin and wiry, and sparsely set with thick, leathery, ovate or heart-shaped, alternate leaves. These leaves are provided with sharp marginal spines and equally sharp, acute apices; they are one-and-a-half inch to three inches long (occasionally longer), and three-quarters-of-an-inch to two inches broad at the base. The flowers are borne in July, August and September, in clusters or singly, in the axils of the leaves near the ends of the long and sometimes contorted stems. The individual flowers are coral-red in colour, globose in shape, and about one-third to one-half inch in diameter, with a double row of segments, varying in number, but the outer ones lying almost flat, while the inner segments are incurved over the stamens and style. Each bloom hangs pendant from a stalk one inch to two inches long and of the same colour as the flower.

Unfortunately, B. corallina, like so many Chilian plants, lacks absolute hardiness, but it can be grown on a south or south-west wall, or in a cool glasshouse. It appears at its best against a grey stone wall, and should not be planted with a background of red brick where the glossy green leaves and bright red flowers do not show to advantage. The species does, however, occasionally become thin, losing the lower leaves, and such specimens may be induced to make more growth by judicious pruning, but this should not be overdone and, in fact, should be avoided if possible, as the plant is naturally a straggly, woodland rambler, climbing by means of its spiny foliage. As a rock garden plant in very mild localities, B. corallina is very beautiful, and it should be allowed to ramble at will down some great rock where there is plenty of room for the long stems. The writer has even seen B. corallina in the southern counties growing (but not luxuriantly) over a large boulder facing due north; the situation was completely sheltered from the cold north-easterly winds, and it flowered each year, but not profusely. It is not exacting as regards soil, provided the latter is well-drained, and although it will not tolerate lime, peat is not essential when the plant has reached maturity. For that matter, it is doubtful if peat is necessary at any stage, although a peaty compost helps to induce a compact ball of roots in readiness for planting out, owing to its own fibrous nature.

B. corallina may be propagated by layers in autumn, or by cuttings of young wood in spring. Propagation may also be effected by seeds, but the latter are not freely produced in this country. *L. B. C.*

ESCALLONIA IVEYI.

Among the more recent of hybrid Escallonias, the subject of this note deserves a prominent position. A young specimen of some three or four feet in height proved its mettle here last winter by surviving the very severe frost without injury, and it has grown with that freedom which suggests a good and vigorous constitution.

E. Iveyi is believed to be a natural hybrid between E. macrantha and E. montevidensis, and it certainly looks like perpetuating the best qualities of both its parents. The large and leathery, dark green, glossy leaves suggest those of E. macrantha, as does the somewhat heavy, bushy habit of growth, but the flowers, instead of being red, are pure white with a stain of crimson at the base of the corollas which imparts a rosy flush to the truss. Individually, the blooms are about half-an-inch across; they have the waxen texture of those of E. macrantha, and are borne in bold, outstanding panicles. These blooms are later than those of the last-named species and earlier than those of E. montevidensis, which means that we have in E. Iveyi a shrub that should make its mark as an evergreen flowering shrub for the latter half of summer.

E. Iveyi promises to be hardier than either of its parents, and it should prove to be a good wall plant, even for those who dare not risk Escallonias in the open. This interesting novelty made its first appearance at Chelsea in 1926, when it was granted an Award of Merit. *J.*

POTENTILLA FRUTICOSA VAR. MANDSHURICA.

Farrer, in the appendix of his *English Rock Garden*, gives an attractive vision of what we might expect from the forms of Potentilla fruticosa from Tibet. Some of these are already in commerce, but he tells that there are shades of cream, yellow, amber and orange which are still to be offered to tempt us to add them to our gardens. The various sizes and habits, also, which these plants appear to assume will give us varieties dissimilar to those we have at present, while the hybridiser will, no doubt, get to work to raise varieties of this most valuable shrub.

One of the best and most distinct of the forms of P. fruticosa at present in cultivation, and one, too, which will not easily be ousted, when once in a garden, because of its beauty, is the variety mandshurica, which is stated to be not uncommon in the semi-arid valleys of western Szechuan. It has received the hall-mark of quality from the Royal Horticultural Society by the Award of Merit given to it, and I make bold to state that no one who has grown it will cavil at this distinction.

It is, perhaps, the most distinct form of P. fruticosa if we limit our choice to the smaller forms best suited for the rock garden, of which there are many. It is an ideal rock garden plant, and forms close carpets of lovely, silvery leaves thickly studded with wonderfully large white flowers resembling those of P. f. var. Veitchii, but looking delightful among the silver foliage and in the surroundings supplied by the rock garden. It is delightful trailing over a bank or a boulder or covering a level terrace, and its apparent indifference to the ordeals through which it passes in a climate such as ours tells convincingly of its value.

P. f. var. mandshurica is a real gem and does not seem to resent the wettest winter we are likely to have or the coldest one on record. It may be grown, too, from seeds or cuttings. It blooms for several months during the summer, and far into latest autumn it dares the frosts of the season and gives delight by its snowy blooms. *S. Arnott.*

BULB GARDEN.

COLCHICUM VARIEGATUM.

The finest of the tessellated Colchicums so far known is C. Sibthorpii, but, unfortunately, it does not appear to be so hardy as we would like, and, to the best of my knowledge, it is not at present procurable from the trade. I had it at one time but lost it during a winter of little more than average severity. It has not been offered by any of the larger bulb dealers for some years. It is a great beauty, with large flowers of rather pale lilac or purple, regularly tessellated by darker markings. It is C. latifolium, of Sibthorp and Smith, *Fl. Graeca*, Fig. 350. According to Mr. Baker in *The Colchicaeae and Abberant Tribes of Liliaceae*, the form × variegatum, of Sieber, is a variety, but is not C. variegatum of Linnaeus, which is the subject of this note.

This is not so attractive as C. Sibthorpii, but but is very distinctly tessellated and the colouring is much deeper. It was known to Parkinson, and appears in his *Paradisus*, 155, 156, Fig. 5, under the name of C. Fritillaricum Chiense. In the *Botanical Magazine* it was called by Hooker, fil. C. Parkinsoni, and was figured in t. 6,090 of that work. The name of Linnaeus C. variegatum has priority, and according to Baker, this Colchicum is figured under that name in the *Botanical Magazine*, t. 1,028, and this name is supported by other authorities. It has also been known in gardens as C. chionense. It is rather a small-flowered species compared with such Meadow Saffrons as C. Bornmuellerii or C. speciosum, and is of moderate height, and when in bloom in autumn a small clump looks exceedingly well, with the dark flowers with sharp-pointed segments. From two to three flowers are produced by one corm. The leaves are produced in spring and are more pointed than those of C. autumnale. One advantage of this Colchicum is the comparative short tube, which enables the flower to withstand stormy weather without suffering so much as do those with long tubes. I have found C. variegatum much hardier than C. Sibthorpii. It comes from Asia Minor and the islands of the Levant.

July is probably the best month in which to plant the corms, which are then at rest, but I have planted them much later and also in spring, and, with care, they did not appear to suffer from removal at an unpropitious season. This Colchicum was shown as C. Parkinsonii at the recent Autumn Show of the R.H.S. *S. A.*

HARDY FLOWER BORDER.

EUPHORBIA SIKKIMENSIS.

This is a very beautiful Spurge with large heads of brightly-coloured blossoms, individually of good size; the deep, butter-yellow is slightly, almost elusively, suffused with green, an added charm to a very fine plant.

The young growths and stems are vivid scarlet, and so this plant is a notable ornament of the hardy flower border for a goodly portion of the year; it thrives in a good ordinary soil and is palpably a good dry-weather plant. A mingling of this and Salvia turkestanica was, a short time ago, a fine feature; quietly coloured, perhaps, but undeniably beautiful. I know little of the origin of this species, but I believe Mr. Elwes collected seeds of it in the Himalayas. *Ralph E. Arnold.*

ALPINE GARDEN.

ERODIUM MACRADENIUM.

The Erodiums are among the most valuable of our rock plants, and fill a place all their own. Although they are nearly allied to the Geraniums and Pelargoniums, they have yet about them a grace and elegance which we cannot find in these other indispensable plants. They are of the highest importance for the sunnier places in the rock garden, and thrive well in similar positions in the moraine. Apart from their charming flowers, almost all of them have foliage of delicate Fern-like aspect, and even when out of bloom are decidedly fascinating.

Of the numerous species, many of which are in cultivation, E. macradenium is one of the best for general culture in the rock garden. Although a native of the high mountains of the Pyrenees, it does not absolutely require lime in our gardens, and the writer is at present cultivating it in a lime-free soil. In this medium it is apparently happy, and has been in flower practically all the summer, and even in these autumn days bears freely its charming blooms. Farrer distinguishes it from E. Choulletianum by its being "green and smooth, glandless and bald, except sometimes for a few spreading hairs." Another point of difference is in the flowers which, in the case of E. Choulletianum, are "reported violet and equal-petalled," while E. macradenium has the upper petals smaller than the others and their paleness is emphasised by the presence of black blotches which add much to the charm of the blooms. The foliage is aromatic, which adds to the interest of this Heron's Bill.

E. macradenium grows only four or six inches high and looks well on the level, from a chink in the rock garden, or in the moraine; while it does not absolutely require lime, some may be added to the soil if convenient to do so. It is propagated by seeds or cuttings.

Its date of introduction is given as 1856. It is figured in the *Botanical Magazine*, t. 4,554, and its colour is given in various works of reference as "purple," while it is stated to be synonymous with E. glandulosum, which is evidently an error. E. macradenium is hardy with me, and survived last winter. *Dumfries.*

CYANANTHUS.

There are not many of these charming Campanulads at present in cultivation, but what few we have are well worth growing and one or two of them are so supremely lovely as to be worth every effort needed to make them thoroughly at home.

C. Delavayi I do not find mentioned in any of my books; it is a hairy little plant of trailing growth, frequently set at the ends of the shoots with rather pale blue stars; it is not one of the most beautiful, but is well worth a place in the moraine, either limestone or granite, but care should be taken to protect it from the ubiquitous slug, which pursues this, as well as the other Cyananthus species, with an unholy zest.

C. lobatus is a gem. From a fat, central crown it sends forth radiating and trailing shoots, thickly set with small, white-haired leaves, and each terminating in due season in a single, large blue flower, similar to a Periwinkle in shape and colour. The calyx is large and baggy, and should be split open after the glories of the flower have faded, as it tends to hold moisture and rot the seeds before they are properly set. C. incanus is similar in all its parts to C. lobatus, but frailer, and with rather more starry flowers, and the calyx has tawny fur, rather than the stiffer bristles of C. lobatus.

I find C. Forrestii, C. pedunculatus, C. integer and C. microphyllus all lauded by Farrer in *The English Rock Garden*, but, alas, I know them not, so will pass them by until I am fortunate enough to have plants from which to describe them.

C. incanus var. leiocalyx I have just found, to my horror, according to Farrer, should be yellow! This sounds too good ever to be true who ever dreamt of a yellow Cyananthus? At any rate, the plant I have growing under this name is a jewel beyond price, almost the best of this lovely race. In habit it is similar to C. incanus, but much stronger, for the sturdy, trailing stems flop afield to a distance of nine inches or so, and the terminal flowers are a glory of deep, deep violet blue, with the loveliest imaginable beard of delicate violet hairs in the throat.

The glory and pride of the Cyananthus race, I have left until last to describe; as yet it has no name, being known merely as K.W. Sp., and if Captain Kingdon Ward never introduced another plant, he could own his laurels well-earned by this incomparable beauty. It is larger and stronger in all its parts than any of the foregoing, the leaves and stems are perfectly glabrous and a soft green in colour, but the flowers—I feel the need of Farrer's eloquence fittingly to do them justice. Fully an inch-and-a-half to two inches across, these purest violet-blue glories are borne in solitary state, each at the end of a far-trailing shoot; the petals are more waxy in texture than most, and seem, as they glisten in the light, almost to radiate the perfect colour.

All these species and varieties are of the easiest culture, provided a few broad rules be followed. They strongly object to too much wet during the winter months, as do most of the alpines from the high mountains of India and China; I find it advisable to spare them a pane of glass during the wettest months, thus at least ensuring plenty of flowers the following season. They all flower about July-August, and most of them are now sending forth a second crop of flowers, smaller than the first, but still lovely; this is no doubt due to the abnormal season, as they are usually thinking of retiring for a well-earned winter's rest by this time (end of September).

Propagation is simple, either seeds or cuttings providing a good method. Soft tips inserted before flowering commences make strong plants the same year, but care should be taken, as they damp-off readily, so they should not be kept too close; I find they root well in the open if kept shaded.

I believe there are a good many other members of this precious genus, so valuable for the scree, yet to be introduced to our gardens; I could almost wish that some one would give the alpines of the high Himalayas and China the attention they deserve, and perhaps give the Primulas and Rhododendrons a little rest, although we still have some lovely Primulas to come, either as newcomers, or re-introductions, even although some of them are such miffy subjects, best left to those who are fortunate enough to have gardens in Scotland, where the climate seems so nearly like that of their own native habitat. *Will Ingwersen, The Birch, Sharpthorne, Sussex.*

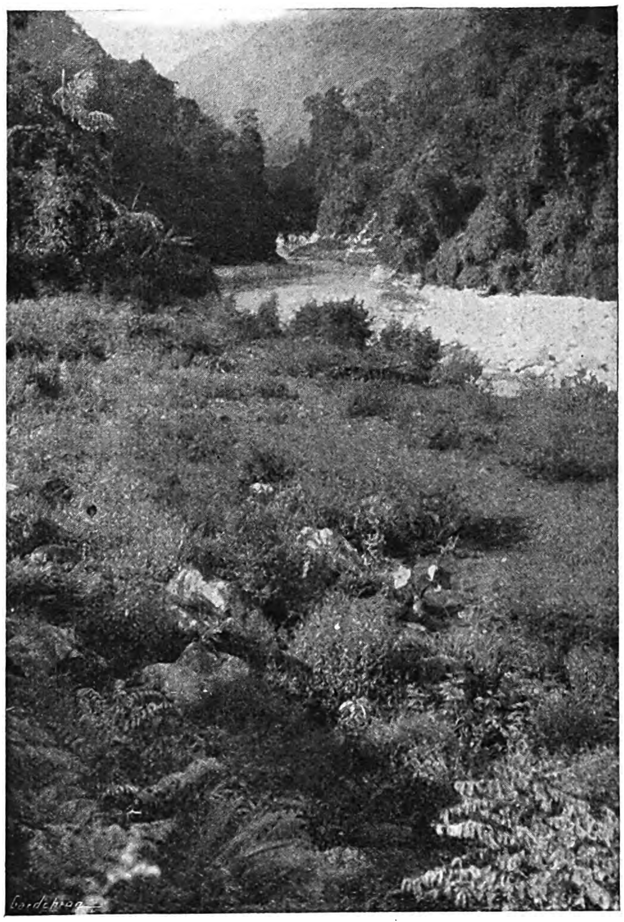

FIG. 139.—A HILL STREAM.

Mr. F. Kingdon Ward's Expedition.

FLOWER GARDEN.

ADLUMIA CIRRHOSA.

Not the least attractive effect this season has been a low fence clothed with this North American climber; of somewhat delicate appearance, the plant is a mass of slender, twining stems and small Maidenhair Fern-like leaves, and the purplish-rose flowers are produced freely on axillary peduncles, usually four-flowered; the leaves are triply-pinnate and of fresh pale green colour.

A biennial, this charming plant may be raised from seeds sown in spring in a shady position; it enjoys a warm, rich soil and in favoured districts perpetuates itself by self-sown seedlings, but it is, I think, seen at its best when grown in a cold greenhouse.

Sometimes known as Corydalis fungosa—the plant is, indeed, lucidly described as a climbing Fumitory. A. cirrhosa was introduced so long ago as 1788. *E. A.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXII.—The Riddle Solved.

SEPTEMBER was the foulest month of all, so far. It rained incessantly, and both Buttercup and I were laid up for several days. There was no point in attacking Polon until the weather improved, as we could not possibly see our way along the ridge; and besides, the steep faces were so slippery that we could scarcely get up them at all. The assault was put off day after day, and still the mist rolled up, and the rain came down in sheets. After the middle of the month I was busy collecting seeds of the forest Primulas. Several times I climbed to the first alpine top, and further along the ridge, but it was always to explore the high gullies, where I hoped to find the red Primula; and each time I was disappointed. However, on the 27th I decided to attack Polon again, whatever the weather, and Buttercup's foot being better, he announced his intention of coming too. Making an early start, we reached our previous furthest point in three-and-a-half hours. Now we divided our forces, and while I started to hack a path through the thick scrub, chiefly Bamboo and Rhododendron, which covered the ridge, Buttercup followed a faint trail which plunged steeply down the shoulder.

After half-an-hour, having made fair progress along the ridge, I came to a cliff, and things looked hopeless; there was not and never had been a path here, at any rate. So I shouted to Buttercup, and presently discovered that he was below and ahead of me, apparently moving parallel to the ridge; our voices, however, were strangely distorted by the mist or the mountains, now coming from one direction, now from another, so that it was some time before we connected. Finally I made my way down a boulder scree overgrown with tall herbs, and found Buttercup on a path which traversed the face below the cliff. He had followed the faint trail, which in spite of a most deceptive descent for five hundred feet, turned out to be the hunters' path after all; a little further on he had discovered quite a snug cave, whence the path climbed sharply up the face again; and the way to the alps was at last clear. We had no time to explore further that day, but we spent half-an-hour here before turning back, and I collected a few seeds of Primula prenantha, and some plants in flower, including a big purple Thistle, or Cnicus, and a Saxifrage. As already remarked, the boulder slope was covered waist deep with tall plants, Geranium, Astilbe, Panax, Polygonum, Strobilanthes, Rheum, and many others; but the face, as a whole, was still clothed with Bamboo and Abies and Rhododendron forest, chiefly the 'Falconeri,' 'Keysii' and 'Thomsoni' species of the latter, which herald the approach to alpine conditions.

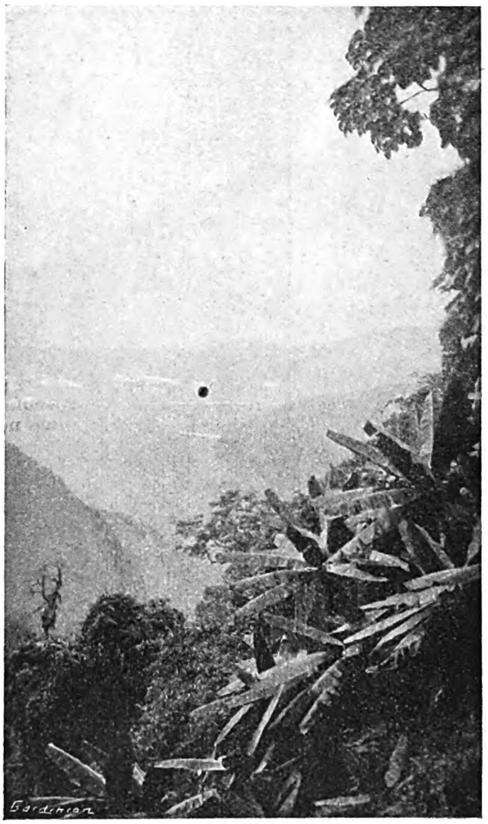

FIG. 140.—THE ASSAM VALLEY FROM THE FIRST TIER OF HILLS; LOHIT RIVER IN THE DISTANCE.

Returning along the ridge, I noticed that several shrubs had coloured well, including a small Viburnum (claret-red) and two Rhododendrons. Of the latter, R. tephropeplum had turned orange and flame-coloured, while the odious little yellow epiphytic monstrosity, about which I could find no good word to write, had turned stark scarlet, with vermilion fruits. There are not many Rhododendrons of my acquaintance whose claim to distinction is based on autumnal colours. A form of R. yunnanense collected at Muli some years ago, coloured well; and there are several species of the 'Roylei' and 'Souliei' types—'Orange Bill' and 'Yellow Peril' from Tibet spring to memory—whose young foliage has by autumn taken on a fine glaucous or verdigris-green. But these two plants, R. tephropeplum and the yellow epiphyte, would be worth growing for autumn effect alone—and R. tephropeplum is a good plant anyway. I remarked, however, that it was only at comparatively high altitudes—10,000 to 11,000 feet, and in exposed positions on the ridge, that the correct colour effect was produced. This applied especially to the epiphyte, which was common at 9,000 feet, in thickets, growing on boulders; and there it had not coloured at all, although the thin fruits reddened well.

Along the open ridge there grew a dwarf Ilex, with small, matt-green, Box-like leaves and tiny scarlet berries. It formed a semi-erect, massive undershrub, and would make an excellent dwarf bush for the rock garden. At lower altitudes, among the big-leafed Rhododendrons, it was replaced by a larger bush species with shiny leaves, which looked as though it would make a good hedge. These two, the dwarf Ilex Pernyi, a species rather like I. Aquifolium with unpolished leaves, a broad, leathery-leafed species which recalls I. dipyrena, and the queer I. nothofagacifolia, were the only species of Ilex met with in the high forest. Four species of Acer were collected, including A. pictum; but only one of them coloured in autumn.

At the end of September, I made a day's excursion to the gulley where the woodland Primulas grew, and collected more seeds of them, besides the Nummularia; and from the sunny side of the ridge I gathered seeds of the magenta Impatiens. By this time I had seeds of about twenty-five species, and the problem was how to dry them. There was no sunshine, our camp in the forest was always wringing wet, and nothing would dry in my tent. In the end, I was reluctantly compelled to dry them by the fire. Three days after our discovery of the route to Polon, on October 1, I determined to carry out the final exploration, and reach the alpine region. It was a terrible day, pouring with rain before dawn, and breakfast by candle light was a chill and dreary business. However, once away and thoroughly soaked, I made good progress up the now too familiar trail. The cave was reached in three-and-a-half hours, which was good going on such a day; here I dumped some tins of pemmican. The day was still young, and I started up the steep trail towards the ridge, full of confidence. In half-an-hour, I was in the sub-alpine region of scrub Rhododendron—'Sanguineum,' 'Roylei' and 'Coals-of-Fire.' There was a dwarf Rose here, too, and a Pyrus with bunches of snow-white berries. Now I was climbing up a steep rock scupper, which spouted water as the rain descended in sheets; and all along the edge the Gamboge Primula was in ripe fruit, hundreds of plants! I had to go slowly here, collecting seeds as I went, but always going steadily up. Now the trail turned across the face again, slanting towards the ridge, and the alpine plants increased in number. There was the tall, yellow Gentian in fruit—I did not see this at Kaso—and a small, blue Gentian in flower; but mostly the rocks were covered with thickets of crouching Rhododendron.

Suddenly I came out into the open, no more trees, no bushes even, just steep alpine meadow, with outcrops of rock, and escarpments beneath which clumps of Rhododendron huddled, and dwarf shrubs, Rose and Lonicera, pressed into crevices. On the first rock slope, I found the pallid, yellow 'Nivalis' Primula, and then, pushing up the slope through the dying meadow, at last the red 'Sikkimensis' Primula! So I went on up towards the ridge, in the stinging rain, collecting fruits of Rosa and Lonicera (which has fragrant white flowers like a Daphne, and fat, translucent, blood-red berries, dangling on long stalks), and of Primula. At last, I reached the very top of the ridge, and knew I was close to the peak of Polon; but I could see nothing in any direction, so thick was the cloud. It was chilly here, too, the altitude being nearly 13,000 feet. I noticed that the slopes were mostly covered with alpine flowers, an Aster, several Saxifrages, a pink Polygonum, and a few others being still in bloom. The leaves of a small Euphorbia formed bright scarlet patches; and among several plants in fruit were the red Nomocharis, Anemones, Caltha, dwarf Umbelliferae and Phlomis. But there were very few dwarf Rhododendrons, the commonest being the purple 'Saluenense'; over the ridge, too, were gnarled bushes of the beautiful species with wash-leather leaves and speckled pink or yellow flowers, suggesting Rhododendron lanatum.

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* Previous articles on Mr. F. Kingdon Ward's Tenth expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 14, and 28, 1929.

More seeds were collected during a tour of the face, and I spent some time hunting for the red Primula, which was rather widely scattered, and hard to see, being only about a foot high, with very slender capsules. About three o'clock I started for camp with a fine lot of stuff. There was a brief lull in the storm, and the clouds lifted sufficiently to reveal the ridge, but not the peak. However, it was soon raining again as hard as ever, and I reached camp soon after nightfall, the climb having taken eleven-and-a-half hours.

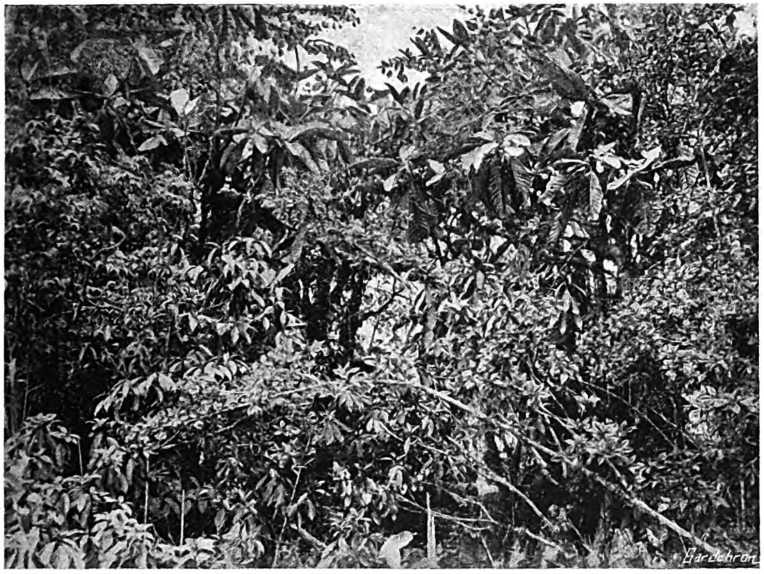

FIG. 141.—TANGLE OF FOREST.
9,000 to 10,000 feet altitude.

I have mentioned that I had dumped several tins of pemmican at the cave; also a tin of biscuits. This pemmican was Buttercup's idea, his experience in the Arctic having taught him its value; and in March he had written to England for some. It arrived with our last supply—40 lbs.—just in time to be of the greatest service. Indeed, it saved the situation. Already we had been obliged to knock off our Rice ration, as we found that there was barely enough to suffice Luso until the middle of October; and for the remainder of our time in the Mishmi hills we lived almost entirely on flour, chocolate, and pemmican, the latter making a very rich and sustaining soup. The advantage of this pemmican was its concentration, a pound tin, with a few biscuits and two slabs of chocolate being sufficient food for one man for four days. Thus it was exactly what was required for the Polon and Kaso climbs we had in prospect. Either of us could easily carry a week's food, a cooking pot, and a little extra warm clothing in a rucksack; if both of us went, we could do ourselves quite comfortably — although Buttercup's foot was bad again, and I realised that he would probably be unfit for the climb. Still, there was Hubble; he had behaved better since his return to the fold, and might be of some use.

In view of the assault on Polon, which was fixed too optimistically, for October 8, I thought it advisable to form a small food dump at the cave; hence, the pemmican. The only other incident of mark in September was the arrival of a mail, or rather the bye-product of one; for a Mithan had doubly distilled it en route during the night. *F. Kingdon Ward.*

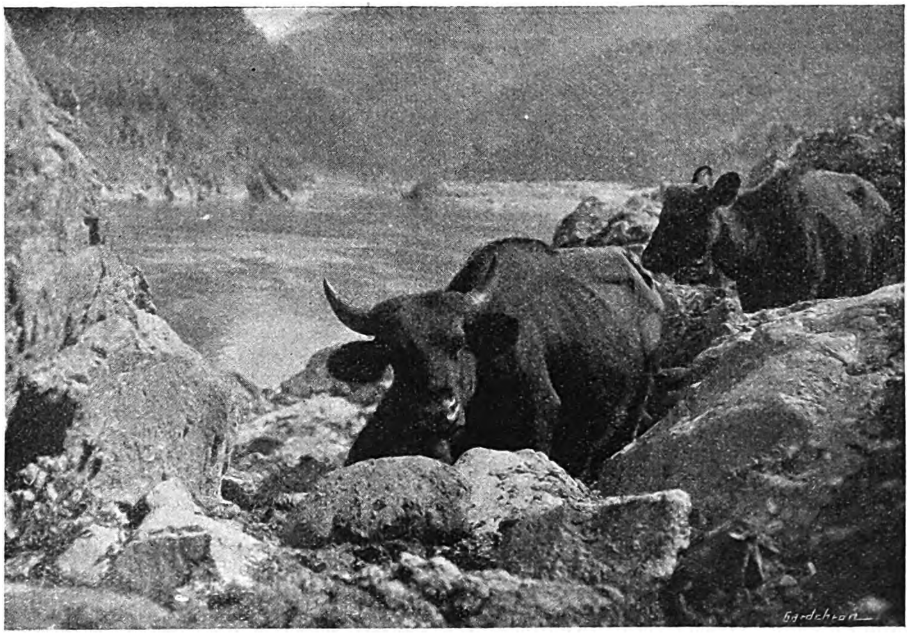

FIG. 142.—MITHAN: THE COW THAT ATE THE MAIL.

NOTICES OF BOOKS.

Fungi.*

THE above is one of the books of Benn's Sixpenny Library, which deals with all sorts of subjects, the present being No. 68. The author, apparently, considers that Fungi are neither plants nor animals, but are related to the former by the fact that they obtain their food in solution by osmosis through a membrane, and reproduce themselves by spores in the case of the higher fungi, just like vascular cryptogams. On the other hand, they have no chlorophyll, cannot build up their own carbohydrates by photosynthesis, and in this respect resemble animals. This would postulate that plants possessing chlorophyll must have existed prior to animals or fungi. After discussing the views that have been held about the origin of fungi, the author states that an opinion becoming more generally accepted is that fungi were originally derived from colourless flagellates, related to the green ones which gave rise to algae. This would imply a very ancient origin, but the geology of the rocks does not help us much owing to the perishable nature of the fungi.

The whole subject is dealt with in seven chapters, which are packed with interesting facts, including chapters on structure, fungi and man, plant pathology, symbiosis, fungi and insects. The dormant bodies, known as sclerotia, which enable fungi to tide over the winter or any other conditions unfavourable to growth, vary in size from that of a small seed to that of a boy's football. Many large sclerotia are eaten by natives. The dry-rot fungus is mostly confined to worked wood in buildings. Some idea of the enormous wastage of spores may be gathered from the fact that the giant puff-ball (Lycoperdon Bovista) is computed to produce seven million millions of spores, which would soon cover the globe, if all were effective. One spore, however, can produce a fairy ring, and that is effective during the life of the ring, whether that is a few years or centuries. In the chapter on fungi and man, it is stated that the poisonous fungi probably do not exceed five per cent. of all toadstools.

The making of wine from Grapes, cider from Apples, and perry from Pears is due to fermentation, caused by minute fungi, known as yeasts, which are of many species. By the ancients, these alcoholic beverages were made by exposing fruit juices to the air, but the modern brewer and baker depend upon pure cultivated strains. Yeasts of different species are known to inhabit the bodies of insects, and are not known to have an independent existence. Parasitic insects extract juices from plants and the juices are fermented by yeasts. In the discussion of mycorrhiza or fungi on the roots of plants, it is interesting to note that a species of Phoma penetrates the roots and ascends the stem, leaf and fruit capsule of Calluna vulgaris, so that the seed coat probably gets infected from that source and the seed is enabled to grow. Fungi share with bacteria the breaking down of all organic matter in the soil, making it fertile for the higher vegetation.

The book runs to eighty pages, including two of enlarged illustrations of parts of fungi, which should be of considerable assistance to beginners in the study of the subject. A careful study of this introduction should induce the reader to go further in some branch of mycology.

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* *Fungi, an Introduction to Mycology*, by J. Ramsbottom, O.B.E., M.A., British Museum (Natural History). London: Ernest Benn, Ltd., Bonverie House, Fleet Street, E.C.

Agricultural Entomology.*

It would be a mistake, by judging from the title of this book, to imagine that it deals only with agricultural entomology; for it applies to field and gardens, large or small, and to domestic animals in considerable variety. Part I deals with the structure and classification of insects, which should interest the entomologist, as well as those who desire to glean an acquaintance with the insects that infest their crops; while Part II is termed the economic section, and runs from page 45 to page 314, including a good index. This latter deals with injurious insects, their prevention or remedies, and, incidentally, would interest the naturalist, in the life histories of insects, their metamorphoses, and migrations in order to complete their life-cycle.

The Collembola or springtails are small, degenerate insects that one would not readily suspect to be injurious to plants, yet some of them are accused of attacking Mangels, Sugar Beet, Currants and Apples. One hundred species of thrips are known in the British Isles, and Onion thrips are peculiar in having a bladder on each foot, which it is capable of inflating at will. The best-known thrips are those of Pears, Onions, Peas, Beans and Grasses, and some of them are stated to fertilise the flowers of Beet. The Pea and Bean thrips (Frankinella robusta) burrows several inches into the soil to pass the winter, yet it was formerly recommended to burn the Pea sticks. It is highly destructive, and stated to be impossible of eradication by spraying, yet gardeners think they can destroy it by repeated spraying with soft soap, if taken in good time. The above is the third scientific name that has been given it to our knowledge.

Rhynchota is here given as a general name for plant bugs, capsids and aphides, instead of Hemiptera, because they all agree in having a long proboscis or mouth parts for extracting the juices of plants, whereas the structure of the wings varies considerably in this large group or class of insects. It is here calculated that the uninterrupted breeding of ten generations of aphides would equal the bulk of the population of the Chinese Empire. Happily, their special foods would fail them long before this could happen, independently of many other natural checks. Aphides are suspected of spreading the virus diseases of Potatos. The leaf-curling Plum aphis is highly destructive, yet hundreds of the gardening fraternity never notice it until long after the damage is beyond remedy, while even market growers suffer it passively, many of the public generally attributing it to some mysterious effect of the weather. Among other remedies, preparations of vegetable poisons, such as Derris root (Leguminosae) are effective against this aphid. The woolly aphis has been found feeding on the Apple, Elm, Hawthorn, and a similar or identical one on the Pear. It lays one winter egg on the Elm. Aphis rumicis, such a scourge to Broad Beans, Runner and Dwarf Beans, feeds on a great number of plants, migrating from one to the other. It reaches maturity in a week or so, and five generations are calculated to number a hundred millions, if unchecked. No details are given of the mealy Cabbage aphis, yet acres of Cabbages and other Brassicae are being rendered useless by it at the present time in the east of England; and the pest ruins the plants being grown for seeds in Essex occasionally.

Capsid bugs, white fly, scale insects, caterpillars, ants, bees, sawflies, craneflies, true flies, red spider, eelworms, millipedes, snails and slugs are all passed under review and remedies given in some detail. A chapter is devoted to insecticides, with their composition and application.

The book is amply illustrated throughout with line drawings and reproductions of photographs. Altogether, it is highly informative and should be on the shelves of every cultivator. Paper, printing and editing are excellent.

PROBLEMS OF PLANT LIFE.*

XI.—The Significance of Bloom.

Our problem now is to discover the part played by bloom in the economy of plant life. In the early days of spring, with the first appearance of the Celandine's gold-enamelled blossoms, it greets us, and remains with us in ever-varying form throughout the remainder of the year.

We are taking the word "bloom" in its widest sense. It embraces not merely the enamel of the Buttercups or the waxy film of the Grape, but all those forms which, whether they occur on stem or leaf, blossom or fruit, tend to throw light on our subject. Fully to understand the matter we must include the delicate pile of the Sugar Cane knot or node, the velvet of Peach and Apricot, and the hairs of the Gooseberry and Bogbean, as well as the gloss on evergreens, and the glaucous coating of a Cabbage leaf. It may be found on almost every part of the plant above ground, and is not limited to fruit or flower, whether wild or cultivated, but occurs in connection with plants of the desert and the seashore as well as the wildings of our fields and hedgerows and the choicest products of the East. We use the word figuratively as a synonym for what is youthful, healthful and beautiful; and when bloom is seen, whether on the face of a damsel, the coat of a horse, or the cheek of a Plum, it gives pleasure and delight.

As varied as are the forms it assumes and the parts it adorns, so varied are the ends which it serves. The old teleologists, seeing it on the ripened fruit, would have said it was designed to give it beauty. If we can hardly go so far to-day, it is not unreasonable to suppose that it serves the same end as colour in relation to birds, and gives them timely notice when the fruits upon which they feed are ready for their services as seed-distributors. In the case of wild fruits, such as Sloes, for example, it would be to the advantage alike of the bird and the plant that there should be some indication when the fruit was at its best. In this way we may still find some justification for the old doctrine of design. It is not altogether out of harmony with what the newer theories of evolution have taught us.

It will be seen that when we speak of bloom we are not using it in the sense of blossom, although both ideas are ultimately traceable to the same stock. The word blossom or bloom has branched out in two directions, and so has come to mean both the flower itself, and that delicate something which beautifies the various parts of the plant, although it is not an organ, and serves a variety of ends. Although it has for ages been observed that bloom occurs, the problem of its significance is a modern one. This we gather from a study of its history; and we have only to turn to the writings of Charles Darwin—that tireless investigator of every problem relating to plant life, to see how little was known about bloom before his day. If we take, for example, such a well-known work as Robert Brown's *Manual of Botany*, published in 1874, we shall look in vain for any guidance in the matter of bloom. No reference is made to it when the various fruits are described, and when the leaves are discussed the following sentences are the only ones which bear upon the subject.

"*Leaf-excretions.*—Of this nature we are inclined to regard the resinous substance seen on the buds of many plants, the sugary substances which cover the Sycamore leaves in the course of summer [Qy. Honey-dew ?], the fragrant resinous substance covering the leaves of the Cinnamon Laurel (*Ceanothus velutinus*) of North America, . . . the wax of the leaves and stems of the Candleberry Myrtle (*Myrica cerifera*), and the layer of wax which covers the Wax Palm (Ceroxylon andicola). Of a similar nature are probably the excretions given off by the hair-like structures of the leaves of Drosera."

Clearly, we have advanced a good deal in our knowledge since this paragraph was penned. Three years earlier Balfour's *Class Book of Botany* had appeared, and here again, while bloom is almost unknown, wax is spoken of as follows:—

"Wax is found in the tissues of plants, and it frequently occurs as a secretion on the stems, as in the Wax Palm, and on the surface of fruits, as in the bloom or glaucous secretion of the Plum and the Candleberry Myrtle. Wax (he adds in a footnote, p. 36) forms a layer on the fruit of Croton sebiferum, Lornia sebifera, Rhus succedaneum, leaves of Enkephalortos, bracts of Musa paradisaica and Strelitzia formosa, and stem of Ceroxylon andicola. Chinese vegetable tallow is procured from the seeds of Stillingia sebifera, and Shea or Galam butter from a species of Bassia." But neither Brown nor Balfour attempted to solve the problem which we have in view.

It was just when these volumes were being placed in the hands of students of plant life that Darwin "sought some explanation of the waxy coat or 'bloom' and layer of fine hairs upon leaves and fruits" from Sir J. D. Hooker, at that time Director of Kew Gardens, and from the letters which passed between them, and the notes of their biographers, some of the following facts have been gleaned. To men of Darwin's type of mind the mere accumulation of facts and phenomena means nothing. The vital question is— What do these things mean ? His researches into the meaning of the bloom or waxy coating found on fruits and leaves, although left unfinished, resulted in the amassing of a large quantity of notes. Some of these, concerning the relation between bloom and the distribution of stomata, appeared in 1886 in the *Journal* of the Linnean Society. He sought help in every direction, and his correspondents included Dr. Asa Gray, Sir Thomas Farrer and Sir W. Thiseleton Dyer.

One of the first and most obvious explanations was that bloom on leaves, flowers and fruits kept water from settling on them and so proving injurious. Injury might result in various ways. There was the question whether drops of water acted as burning glasses. He pressed this question on all his friends, but in 1877, while stating that he believed that bloom prevents injury from pure water resting on the leaves, this is as yet "the most doubtful and the most interesting point in relation to the movements of plants."

Then came the question of transpiration. In 1850, Garreau had noted that bloom is a check on the action of leaves. Darwin worked independently on the subject, and both he and Tschirsch published identical results with those of their predecessors. But while this was true of leaves, what of fruits ? Here, too, it has been found that bloom serves a great end. Let me quote from the Rev. Hugh Macmillan:—

> "You have all, I am sure, got some time or other, a newly gathered bunch of Grapes from a hothouse. You have noticed what a beautiful bloom there was on each berry, and how it set off the rich glowing purple hue of the Grapes by the contrast of its grey colour. You have touched this bloom very lightly and it vanished. Had that berry been growing on the vine when you touched it and thus rubbed off the bloom, which serves an important purpose in the economy of the fruit, regulating its temperature, the berry would not be able to resist the forces opposed to its welfare, and it would soon decay, and in the place of the beautiful bloom would come the grey unsightly mould of a destructive fungus."

Thus the bloom not only checks transpiration and regulates the heat, but acts as a shield against invasion by microbes, yeasts, ferments, bacteria and other insidious aggressors. One writer informs us that the bloom of the Grape is due to a thin, waxy coat which, unfortunately, is not sufficient always to protect the berries from fungi. It is a question, however, whether the spores of fungi could ever germinate on the bloom while it remains perfectly intact. I have just examined a specimen and find that the bloom resembles a thin, even wash of grey water-colour which may readily be smudged away. The Grape was covered with microscopic matter, invisible to the naked eye, but one could find no sign of germination. If, however, germs are brought into contact with an abrasion or wound, they soon begin to grow. The bloom of the Grape, Plum, Sloe and other fruits seems to be the most delicate form of secretion or protection. In the Peach and some other fruits it takes the form of a pile or coat of velvet; then we pass to such forms as the Gooseberry, where we find the hairs greatly elongated, and the more delicate bloom wanting. In such fruits as the Apple we have something approaching a layer of cork, while crystals of different kinds are found in other fruits and leaves, suggesting that insect and other foes have to be met and checked. *Hilderic Friend.*

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* *Agricultural Entomology*, by D. H. Robinson, B.Sc. (Lond.), Head of the Biology Department, Harper Adams Agricultural College, Newport, Shropshire, and S. G. Jary, B.A. (Cantab.), Advisory Entomologist, Southern Province, and Lecturer in Economic Entomology in the University of Reading. Duckworth, 3, Henrietta Street, London, W.C.2; 1928. Price 15s. net.

* Previous studies appeared in our issues of April 13 (p. 279). June 15 (p. 446), Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71); August 17 (p. 130), September 7 (p. 187), September 14 (p. 207), September 28 p. 247), and October 5 (p. 268).

THE GENUS PRIMULA.

(*Continued from p.* 250.)

ROYLEI (Balf. f.). Royle's P.
(Petiolaris-Roylei).

A VERY beautiful, perennial species from the Himalayas, with a stout rootstock which produces numerous, erect, oval-pointed scales one-and-a-half inch to three inches long, coated with yellow meal; these scales surround the flower stem at flowering time. The congested rosettes of leathery leaves have oblong, blunt blades contracted into strap-shaped, broadly-winged stalks dilated and clasping at the base, in all from three to five inches long; margins furnished with sharp, irregular teeth as though gnawed by insects; both surfaces clothed with minute, capitate, meal-producing hairs. Flower stem four to seven inches tall, more or less mealy and bearing an umbel of about two dozen purple, violet or pink blossoms with a deep purple or nearly black eye surrounding the yellow mouth of the tube; a cream-coloured form has also been recorded. Corolla about one inch across, slightly concave, with spreading and overlapping, oblong or egg-shaped lobes, retuse at the tips; tube funnel-shaped, slightly longer than the calyx, with a ten-lobed ring in the mouth. Flowers from May to August.

Grows in alpine pastures, at times in shade, near Jongri, Sandakphu, Tari and Megu, in the Sikkim Himalayas, at from 11,500 to 14,000 feet above sea-level., also near Kanglanamo, in the Nepal Himalayas, and in south-eastern Tibet, at 15,000 feet above sea-level.

Var. acaulescens (Balf. f.). A stemless form with elongated flower stalks about four-and-a-half inches long, and longer leaves. Sandakphu, Sikkim Himalayas, at 10,000 to 12,000 feet. Flowers in May and June.

The type has been in culture since 1887 under the name of P. obtusifolia (Royle) and P. obtusifolia var. Roylei (Hook. f.). The type is illustrated in the *Bot. Mag.*, t. 6,956 under P. obtusifolia.

Culture: As for P. petiolaris.

RUFA (Balf. f.). Rusty P.
(Bullatae).

A robust, sub-shrubby evergreen species more or less covered, with the exception of the corolla, with minute, rust-coloured hairs. The woody, branching, rootstock is clothed with the dried remains of the previous seasons' foliage, and the fragrant leaves are produced in dense tufts and have elliptic, blunt blades from one-and-a-half inch to two-and-a-half inches long, gradually tapering to a winged stalk, dilated at the base, about one inch long; margins edged with broad, rounded, regular teeth; upper surface slightly bullate, underside covered with golden meal. Flower-stem erect, six to nine inches tall, non-mealy, bearing a many-flowered umbel of golden-yellow blossoms with their tubes more or less covered with yellow meal. Corolla about five-eighths-of-an-inch across, with rounded, bifid lobes; tube about half-an-inch long, nearly twice as long as the calyx. (Illust. in *Trans. Bot. Soc. Edinburgh.*, Vol. XXVI, 1913.)

Grows in the clefts of rock and on the ledges of cliffs, on the mountains near Heechanmen, in Yunnan, western China.

Culture: As for P. bullata.

RUPESTRIS (Balf. f.). Sticky Chinese P.
(Sinensis).

A rather small-flowered, perennial species with the whole of its foliage, stems, calyces and blossoms covered with long or short, viscid, glandular hairs. The tufts of dark green leaves have elliptic-oval or almost circular blades from three-quarters- to one-and-a-half inch long, rounded at the tip, heart-shaped at the base, borne on a rounded stalk from two to three-and-a-half inches in length, slightly expanded at the base; margins usually divided into seven unequal, rounded or truncate lobes ending in a red tooth; underside prominently veined, more or less red. Flower stem from four to six inches tall, bearing one or two superposed umbels of about half-a-dozen white, lilac or rose-coloured blossoms with a greenish-yellow eye; the slender, reddish stalks are from three-quarters- to one-and-a-half inch long. Corolla flat, three-eighths- to half-an-inch across, with rounded, heart-shaped, deeply-notched lobes; tube cylindrical below, dilated upwards, about twice as long as the calyx. In cultivation in 1916.

Grows in clefts in dry limestone cliffs in the Ta-Pa-Shan, in Szechuan, western China, at elevations up to 8,000 feet above sea-level.

Culture: As for the typical P. obconica.

RUPICOLA (Balf. f.). Boulder P.
(Souliei).

This rather dwarf, perennial species produces numerous tufts of thin foliage from the same rootstock, which is clothed with the dried remains of that of previous seasons. The leaves have oblong-lance-shaped or narrowly egg-shaped blades about one inch to two inches long, gradually tapering to a winged stalk two to four inches long; margins somewhat sinuate, coarsely and irregularly toothed or bi-dentate, edges fringed with fine hairs; both surfaces moderately downy; underside, when mature, sparsely coated with yellow meal, densely so when young. Flower stem three to seven inches tall, more or less downy or mealy, bearing an umbel of about eight deep purplish-blue or rose-coloured blossoms with a yellow eye, on erect stalks. Corolla about three-quarters-of-an-inch across; segments spreading, egg-shaped or broadly heart-shaped, bifid at the tip; tube cylindrical, dilated upwards, with a ring in the throat, white, veined purple, larger than the calyx. Flowers in June and July. In cultivation in 1922.

Grows on boulders and in open, stony pastures on the mountains of the Yangtze bend, in Yunnan, at 12,000 feet above sea-level; also on the shady ledges of limestone cliffs and among scrub, near Muli, in south-western Szechuan, at 13,000 feet above sea-level.

Culture: Gritty loam and peat mixed with limestone chips in an open or half-shady situation, with protection from damp in winter, should suit it.

RUSBYI (Greene). Rusby's P.
(Nivales).

A beautiful, slender perennial species of tufted habit with broadly lance-shaped, rather blunt, membranous leaves three to five inches long, tapering to a narrowly-winged stalk about equalling the blade in length; margins finely or coarsely toothed; both surfaces smooth, non-mealy. Flower stem slender, four to nine inches tall, mealy among the flowers, bearing an umbel of six to ten nodding blossoms of a bright rose-red or crimson-purple colour with a darker ring at the base and a yellow throat. Corolla about three-quarters-of-an-inch across, with broadly heart-shaped, notched lobes; tube cylindrical, slender, more than twice as long as the calyx. Introduced in 1881. *Bot. Mag.*, t. 7,032.

Grows in the damp ledges of cliffs usually facing north, on Mount Mongollen, in New Mexico, and Mount Santa Rita, in Arizona, U.S.A.

Culture: Plant it in fibrous loam, peat, leaf-soil and sand, in a cool, damp spot in the rock garden, with protection from damp and severe frost in winter.

RUSSEOLA (Balf. f.). Russet-leaved P.
(Nivales).

An extremely robust and very handsome species with stout, mealy resting buds and tufts of elongate leaves with oblong-oval, blunt or sub-rotund blades, tapering to a long, membranously-winged stalk, in all from nine to twelve inches long; margins furnished with minute teeth; upper surface pale green when young, turning russet colour when mature, underside finely coated with white meal. Flower stem stout, nine to fifteen inches tall, slightly mealy, bearing a many-flowered umbel of fragrant, deep navy-blue or rich purple-rose, grey-eyed blossoms on stalks about one inch long, coated with white meal. Calyx brownish-purple. Flowers from June to August. In cultivation in 1925.

Grows in moist, stony pastures and in crevices of damp, cool cliffs in shady valleys, on the mountains around Muli, in south-western Szechuan, at 11,000 to 12,000 feet above sea-level; also at Kagwrpu, near Tsarong, in south-eastern Tibet.

Culture: As for P. nivalis.

SAPPHIRINA (Hook. f.). Sapphire P.
(Soldanelloideae).

A very beautiful little species of densely tufted habit, with rosettes a quarter- to half-of-an-inch across, of minute, egg-shaped, spathulate or wedge-shaped-spathulate, blunt leaves narrowed to short stalks; margins pinnatifidly toothed; both surfaces covered with white, scattered hairs. Flower stem one inch to two inches tall, very slender, bearing one to four stemless, nodding flowers of a bright or pale sapphire-blue colour. Corolla funnel-shaped, about a quarter-of-an-inch across, with oval, notched lobes; tube short, broadly funnel-shaped, very little longer than the calyx. Flowers in May. Introduced in 1887; soon lost. *Bot. Mag.*, t. 6,961.

Grows in rocky alpine pastures, flowering on the edge of melting snow, in the Sikkim Himalayas, at 12,000 to 16,000 feet above sea-level.

Culture: Grow it in gritty loam and peat, in a damp, cool spot, with protection from damp in winter, or treat it as a cold frame plant.

SATANIENSIS (Balf. f.). Satanee P.
(Cortusoides).

This rather handsome perennial plant is a sub-species of P. polyneura (Franch.); it produces a tuft of thin leaves with heart-shaped blades about three inches long, borne on distinct hairy stalks about five inches in length; margins very deeply cut into ten or twelve blunt, obscurely toothed lobes; both surfaces sparsely clothed with glandular down. Flower stem nine to fourteen inches tall, bearing an umbel of about half-a-dozen almost stalkless, purple-rose blossoms with a tube that is longer than the calyx.

This species is found in shady places on the Satanee and Gahoba Ranges, in Tibet.

Culture: Good, friable loam and Oak or Beech leaf-soil, in a cool, moderately damp, shady spot, are the conditions suggested.

SAXICOLA (Craib). Himalayan Rock P.
(Petiolaris-Sonchifolia).

A dwarf, tufted, deciduous perennial species with a rosette or tuft of membranous, green, usually smooth leaves with blades varying from oval to spathulate or spathulate-elliptic, wedge-shaped, heart-shaped or truncate at the base, tapering to a more or less winged stalk, in all from two-and-a-half to four-and-a-half inches long; margins lobulate, lobes edged with sharp teeth. Flower stem not developed; flower stalks one to two inches long, slender, downy with glandular hairs, each bearing a solitary blossom the colour of which has not been recorded, but is in all probability purple. Corolla about one inch across, with egg-shaped or egg-shaped-wedge-shaped, trilobed segments; tube about three-quarters-of-an-inch long. Not in cultivation.

This species is found at Kulu and in the Châchpur Valley, in the north-western Himalayas, at about 5,000 feet above sea-level.

Culture: Good, rich, fibrous loam mixed with Oak or Beech leaf-soil and a cool, damp situation in the rock garden should suit this species.

SCAPIGERA (Craib). Tonglu P.
(Petiolaris-Sonchifolia.)

This deciduous, perennial species, which was formerly considered to be a form of P. petiolaris, has a short, thick rootstock, which produces a tuft of membranous or Papyrus-like, smooth leaves with oblong-spathulate, oval, oblong-elliptic or oblong blades, widely wedge-shaped, truncate or heart-shaped at the base, contracted into a short, broadly or narrowly winged stalk, in all from three to six inches long; margins somewhat thickened, edged with irregular teeth. Flower stem almost obsolete or equalling the foliage in length, frequently much surpassing the leaves when in fruit, very stout and bearing a few- or many-flowered umbel of large blossoms, on stout stalks one to two inches long; the colour of the blossoms is usually some shade of purple. Corolla over one inch across, with bilobed or trilobed, irregularly-toothed segments; tube cylindrical, about three-quarters-of-an-inch long.. In cultivation in 1920.

This is apparently a common species near Tonglu, in the west Sikkim Himalayas, at 7,000 to 10,000 feet above sea-level.

Culture: As for P. saxicola. *A. W. Darnell.*

(*To be continued.*)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)
(*Continued from p.* 270.)

ENGLAND, S.W.

Gloucestershire.—I have heard no good reports on the Apple crop in this district. Most of the trees blossomed very well but failed to set fruits; a few trees, however, have a fair crop. Pears are very good; the fruits have been severely thinned, and the trees look well. We had heavy crops of bush fruits, but Strawberries were very poor, which is unusual here. The soil, is friable, overlying old red sandstone. The rainfall here for the six months ending June 30 was only 7·23 inches. *John Banting, Tortworth Gardens, Falfield.*

—— The Apple crops are somewhat below the average. Bramley's Seedling suffered through the buds being frozen before they opened; other varieties flowered well, but many fruits fell after setting. Pears, on the whole, are a fair crop. Plums are patchy; in some places the trees are cropping heavily, especially Purple Pershore, Victoria and Czar, but in others the crop is light. The Blaisdon Red, which is largely grown in the Severn Vale, is rather over half an average crop. Crops of Gooseberries constituted a record, both for weight and quality. Black Currants and Raspberries were good, where they were not injured by frost. The first Strawberry blooms were killed by frost, and the crop, as a whole, cannot be called satisfactory. *G. H. Hollingworth, Shire Hall, Gloucester.*

Herefordshire.—There was a good average crop of all bush fruits in this district, but owing to the drought, Strawberries were small and the season for them short. Apples are patchy, some trees having heavy crops, others very light indeed; Warner's King has the heaviest crop, while Cox's Orange Pippin trees are practically barren. Peaches and Nectarines carried heavy crops, the fruits being of first quality. Pears vary a good deal, and on the whole are a light crop, while Plums also are variable. The soil in this garden and district consists of heavy clay. *J. B. Cooke, Ledbury Park Gardens, Ledbury.*

Shropshire.—The crops of hardy fruits are far from satisfactory, especially so in the cases of the more important kinds, particularly Plums, which are a complete failure, although there was abundance of blossom. Morello Cherries were the most prolific of stone fruits. Apricots are clean and healthy and vigorous, and it is not easy to explain why the blossom failed to set. We are favoured here with a heavy loam soil on a subsoil of clay. No fruit trees suffered from drought, except Cherries. *Roger F. Jones, Oteley Hall Gardens, Ellesmere.*

—— Owing to the dry season, Strawberries were a very light crop. Black Currants, Red Currants, Gooseberries and Raspberries all carried good crops, also Peaches, Apricots and Figs out-of-doors, but Apples are below the average; such varieties as Newton Wonder, James Grieve, New Northern Greening and Worcester Pearmain had good crops, but many other varieties have no fruits at all. Pears, Plums and Damsons also are below the average, although the fruits are of good quality. *J. Clark, Sansaw Gardens, Clive, Shrewsbury.*

Worcestershire.—The Apple crop generally in this district is a very poor one, after a good show of blossom which, however, did not set well, owing, I think, to the very severe, dry winter and lack of rain in the spring. Caterpillars have been very destructive in most of the older orchards that were not sprayed, and some of the trees are nearly devoid of foliage, and the fruits punctured where there are any. Pears are a very good crop here. Plums are a fair average crop, also Damsons. Peaches, Nectarines and Apricots have carried good crops outside. Black Currants, Gooseberries and Red Currants, and Raspberries produced abundant crops of good quality. Cherries were very good. Strawberries were poor owing to disease, and Nuts are very scarce. Our soil is very light, overlying gravel. *H. T. Cheeseman, Strensham Court Gardens, nr. Worcester.*

—— The Apple crops are variable, being very good at fairly high elevations but nearly a failure in low, damp situations, subject to frosts at night; Pears and Plums are similar to the above. Cherries bore fairly good crops but the fruits were small owing to continued low temperatures and frosts at night. Peaches, Nectarines and Apricots were average crops. Small fruits were up to average, but rather late, Strawberries suffered considerably owing to the continued low temperature and cold winds, the fruits being of inferior quality. *William Crump, V.M.H., Oakridge, Richmond Road, Malvern Link.*

(*To be continued.*)

THE EDITORS' TABLE.

THE EARLHAM MONTBRETIAS.

We recently received from Messrs. Barr and Sons some grand sprays of several varieties of the Montbretias raised by the late Mr. Sydney Morris, of Earlham Hall, Norwich, and which both in size of flower and colouring, are vast improvements on the old type of Montbretia. They are very attractive when used for table decoration. Messrs. Barr and Sons have made a speciality of the Earlham Montbretias, as evidenced by the several bright displays of these set up by this firm at the recent fortnightly meetings of the R.H.S.

The varieties they sent us included His Majesty, probably the best, with huge, dark velvety-scarlet, gold-shaded blooms, dark crimson on the reverse; Fiery Cross, glowing fiery-orange, with a large primrose-coloured eye, stated to be a vigorous grower; Kathleen, with large blooms of good substance, broad, apricot-scarlet petals and a primrose-yellow eye, with small, maroon blotches; Red Knight, with large, star-shaped flowers of rich red shaded gold, and dull crimson on the reverse, and Queen Alexandra, rich yellow, flushed apricot, with blotches of crimson at the base of the petals. Several of these Montbretias have received Awards of Merit from the R.H.S., while the variety His Majesty has been honoured with the R.H.S. First Class Certificate.

AMARYLLIS BELLADONNA VAR. ROSEA MAXIMA.

Messrs. Barr and Sons very kindly forwarded to us a grand inflorescence of the lovely Amaryllis Belladonna var. rosea maxima, which was cut from a bulb which had not been planted and which flowered in their warehouse, without the aid of soil or watering. The colour of the blooms, of which there were seven, with three unopen buds, was not so intense as in blooms developed on plants out-of-doors, but they demonstrated well the remarkable vitality of this Amaryllis.

A. B. var. rosea maxima is much more robust and of richer colouring than the type, and is extremely fragrant.

HOME CORRESPONDENCE.

National Carnation and Picotee Society.—I am sorry if my original communication has roused the ire of the Hon. Treasurer of the Northern Carnation Society, but I have not the time, intention or desire to enter into correspondence on the subject. The down-to-date *facts,* which I am more concerned with than out-of-date history, were given in my letter and these are amply confirmed by the records of the National Carnation and Picotee Society in my possession, also by details given in the various horticultural directories. If further confirmation is needed, and I doubt whether it is, I would emphasise the fact that the Northern Carnation Society is affiliated to the N.C.P.S., that it pays the ordinary annual fee for this purpose, and is entered in our records under the title of Northern Carnation Society. Such an affiliation would be unnecessary if it was part of the N.C.P.S. I would remind Mr. Hewitt that there has been no break in the continuity of this Society's activities during recent times, whilst his own became defunct years since, and the present organisation (Northern Carnation Society) was only started in recent times. Mr. Hewitt has evidently had no experience in the organisation of a National flower society, if he thinks such a body cannot offer more advantages than an ordinary affiliated society, and I would point out that the N.C.P.S. has held exhibitions in the provinces and will do so again in a similar manner to other National flower societies. For Mr. Hewitt's information, the N.C.P.S. (not section, although for economy's sake we are still utilising some of the old stationery) is not out for cheap publicity. *A. E. Amos, Hon. Secretary, N.C.P.S.*

FOREIGN CORRESPONDENCE.

HUNNEMANNIA FUMARIAEFOLIA.

Hunnemannia is a monotypic genus named in honour of John Hunnemann, an English botanist who died in 1839. The only representative of the genus—H. fumariaefolia—is a native of the xerophytic regions of Mexico. It is known by the name of Mexican Tulip Poppy, and is one of the most satisfactory flower garden annuals available for use in the eastern United States. I have referred to this plant as an annual because it is always grown as such—at least in regions where winters are at all severe—although in its native country and in such favourable climates as that of California, it persists for several years.

To obtain good results, the seeds should be sown early, for the plants are extremely slow-growing in the young stages. Seedlings may be raised in pans and transplanted later, or a better plan, perhaps, is to sow three or four seeds in a small pot and thin out the resulting seedlings, leaving only the strongest, for, like most members of Papaveraceae, the Tulip Poppy resents disturbance at the roots. Grow them on in full sunlight, gradually harden off, and after all danger of frost is past, plant them in the open ground, allowing the same distance between the plants as would be considered satisfactory for Antirrhinums. Once the plants are established in their permanent positions growth is rapid; they revel in hot, sunny weather and rather dry conditions.

The plants are bushy in habit, from two to three feet high, and possess beautiful, feathery, glaucous-blue foliage. They are very floriferous, plants from early sowings commencing to bloom in late June and continuing right on until hard frosts cut them down. This is a valuable characteristic in this portion of the world, where so many of the familiar half-hardy annuals cease to flower either temporarily or permanently during the hot weather we are accustomed to expect during August.

The flowers of this subject are of the clearest possible lemon-yellow, resembling in general appearance (as does the whole plant) a large Eschscholzia, but having more substance. They are produced on erect stems, and each is two or three inches in diameter. During bright weather they are expanded, but in dull periods and in the evening they are partially closed, when they appear very much like a yellow, early-flowering single Tulip.

In addition to its value as a flower garden subject, the Tulip Poppy is excellent as a cut flower, and may be used with good effect in decorative work. Unlike the majority of Papaveraceous subjects, it stands well when cut, and will last in good condition for several days in water. An extraordinary amount of cut bloom is obtainable from a bed of Hunnemannia. The colour blends delightfully with the rosy-purple of Verbena venosa. Hunnemannia is also grown to a considerable extent in beds in greenhouses to help to supply the ever increasing demand for cut flowers. *T. H. Everett, Pleasantville, N. Y.*

STRAWBERRIES AND STRAW.

J. W. Morton, in your issue of June 15 states it is essential that Strawberries be marketed clean, otherwise they are worthless Personally, I quite agree with him, but here in the U.S.A. growers of Strawberries never seem to consider the matter of strawing down the plants, despite the fact that violent storms are apt to be frequent during the fruiting period. I have not seen a commercial field strawed down, nor have I ever bought berries that were free from grit. As a rule, it is necessary to wash the berries!

The general custom of Strawberry-growing here, even in gardens, is to allow the plants to become a dense mat; as a result one never sees really large berries, and seldom have they any real flavour; indeed, some berries sold more resemble mealy Potatos. Due to the wide area from which the fruits come, we, in the east, are able to buy Strawberries from February until July, the early crops coming from Florida. All the fruits are packed in smart punnets, these being shipped in crates holding about one hundred, in refrigerated cars. The earliest fruits generally make about 35 cents. a punnet, and the cheapest, about 15 cents. It is rare that one can buy a basket of fruits of even size, unless the salesman, usually the grocer in the smaller towns, picks them over himself and grades them. This is almost always necessary, as a matter of fact, if the berries are grown in some distant state, for such fruits are apt to be several days old and some mushy or mouldy specimens have to be removed.

Some years ago, I tried out a dozen varieties, but did not find one to suit my taste, and since the birds took heavy toll, no netting being available, I hoed out the lot. This season I am trying a batch raised from English seeds, but it is yet too early to state how they will turn out. The few that have fruited were only of moderate size, but the plants are healthy and have made runners freely. I do not, however, intend to adopt the matted system of culture, and hope next season to prove or disprove the statement that English Strawberries are of no service here. *T. A. W., New Jersey.*

SOCIETIES.

ROYAL HORTICULTURAL.

SECOND AUTUMN SHOW.

(*Concluded from p.* 274.)

Trees and Shrubs.

The Viscountess St. Cyres (gr. Mr. Honess), Walhampton Park, Lymington, Hants., sent an interesting collection of some of the less common shrubs. There were fruiting sprays of Umbellularia californica, Pittosporum Ralphii and Actinidia chinensis, while long trails of Araujia sericifera bore both flowers and fruits. Tecoma grandiflora, Clematis nutans and Salvia farinosa were represented by splendid flowering shoots. Gerald W. E. Loder, Esq., Wakehurst Place, Ardingly, Sussex, showed exceedingly floriferous sprays of Lagerstroemia indica, for which he received an Award of Merit in 1924, and of the interesting Pileostegia viburnumoides which received an award ten years earlier.

One of the most attractive exhibits in the hall was the circular Heath garden, so well arranged by Messrs. **Maxwell and Beale**. This charming group was well placed in the centre of the new hall. The very many species and varieties of Lings and Heathers were pleasantly broken by small specimens of Picea pungens var. Kosteri, Cupressus Fletcheri and Cedrus Deodara, and by little groups of various fruiting Berberises and Pernettya mucronata. The chief Ericas were E. vulgaris var. H. F. Beale, E. hybrida var. Williamsiana, E. vagans var. rubra and Daboecia polifolia.

Very good collections of Clematis were arranged by Messrs. **L. R. Russell, Ltd.**, and by Messrs. **Geo. Jackman and Son**. The former included plants of Crimson King, Lady Caroline Neville, Marie Boisselot, Gipsy Queen, Star of India, Beauty of Richmond, Jackmanii superba and tangutica var. obtusiuscula. The chief varieties shown by Messrs. **Geo. Jackman and Sons** were ascotiensis, The President, Gloire de St. Julien, W. E. Gladstone, Crimson King, Jackmanii, Beauty of Worcester and Princess of Wales.

Near the entrance, Messrs. **R. Wallace and Co.** had a large and effective group in which the glowing colour of a batch of Berberis Prattii placed in one corner held the eye, while in another there was a trained plant of Vitis vinifera var. purpurea bearing many bunches of little purple Grapes. Golden colour was provided by several shapely Cypresses, and the ripening leaves of a tall, slender Ginkgo biloba. Other trees and shrubs worthy of note were Rhus typhina var. laciniata of good autumn colour, Rosa Moyesii bearing numerous brilliant hips, Pyruses in variety, and Ceanothus azureus and Lespedeza Sieboldii in flowering sprays.

In the interesting group of Messrs. **J. Cheal and Sons** the shrubs in flower included various Clematises, particularly Nelly Moser, Lady Betty Balfour and Ville de Lyon, Elsholtzia Stauntonii, Kalmia rubra and Desmodium pendulifolium. The baskets of fruits of many Crabs attracted very much attention, and there were well-fruited standards of Pyrus edulis, P. Golden Gem and others. The group also contained tall, shapely Conifers, Pyracantha warleyensis and Viburnum Opulus, with many bunches of shining fruits. Messrs. **Wm. Cutbush and Son** arranged a goodly group around one of the pillars, where they displayed many Pyruses, Berberises, hardy Fuchsias, Cotoneasters and brilliantly coloured Ampelopsis Veitchii.

An extensive exhibit, set up by Mr. **R. C. Notcutt**, contained many large bushes and tall standards. He included Pyrus theifera, Pyrus floribunda var. purpurea, Pyrus Aucuparia var. pekinensis, Raphiolepis Delacourei, Ceanothus albus var. plenus, Ceanothus Georges Simon, Elsholtzia Stauntonii, Laburnum semperflorens, Althaeas in variety, Caryopteris Mastacanthus and Hydrangea paniculata var. grandiflora. Mr. W. J. **Marchant** had good colour on his Berberises, Cornus florida, Pyrus arbutifolia and Viburnums.

Many interesting and useful subjects were shown by Messrs. **Hillier and Sons**, who devoted a considerable portion of their space to well-grown Conifers. There were many Cedars, Silver Firs, Spruces and Yews, as well as Taiwania cryptomerioides, Cunninghamia Konishii, Pinus Montezumae, P. M. var. Lindleyana, and branches of Abies Webbiana, A. concolor and Pinus Ayacahuite, all bearing their cones. In their general collection we especially noted Euonymus planipes, Fremontia californica, Rosa setifolia, Rosa pomifera, many Althaeas, Prunuses, Berberises and Quercus coccinea of brilliant colour.

Tall Conifers gave dignity to the exhibit of Messrs. **George Bunyard and Co.**, who also showed a large, well-flowered bush of Viburnum Tinus, Desmodium pendulifolium, Leycesteria formosa, Lonicera Maackii, hardy Fuchsias and shrubby Veronicas in flower, and many Berberises. Standard Pyruses of good shape were grouped by Messrs. **W. Wood and Son, Ltd.**, who also included Cryptomeria japonica var. cristata, Cryptomeria japonica var. elegans, Tsuga Sargentii var. pendula and Crataegus elongata. In a well-arranged group, Messrs. **Bakers** showed many Berberises, Buddleia Fallowiana, Lonicera grata, Ceanothus Gloire de Versailles and several good Clematises.

Conifers of good shape predominated in the group of Messrs. **Fletcher Bros.**, whose chief specimens were of Pseudotsuga Douglasii var. Fletcheriana, Taxus baccata var. semper aurea, Taxus b. var. Dovastonii elegantissima, Picea excelsa var. Remontii and an especially well coloured example of Cupressus Lawsoniana var. aurea.

Large bushes of Symphoricarpus bearing plenty of white fruits were shown by Mr. H. **Hemsley**, who also included Pyracantha Lalandii, Phlomis fruticosa, Viburnum Opulus, Veronica parviflora, Tamarix hispida, Caryopteris Mastacanthus, and a good selection of Althaeas. Messrs. **Bagessens** had large specimens of Picea pungens var. Kosteri, Thuja occidentalis varieties, and Taxus baccata, with Japanese Maples and Berberises.

Bright autumn colour was present in the group of Messrs. **Waterer, Sons and Crisp** on Berberis Thunbergii, Acer japonica laciniata and Azalea pontica, while the fruiting examples included Euonymus fructo-rubra, Euonymus yedoensis, and many Pyruses. They also had graceful specimens of Acer Negundo aurea, Escallonia floribunda, various Pittosporums, Cornus Mas in fruit, Desmodium pendulifolium, Lonicera sempervirens, Hollies and Althaeas.

In an imposing group, Messrs. **A. Charlton and Sons** placed tall Conifers, Japanese Maples and standard Pyruses above Stranvaesia undulata, Desmodium pendulifolium, Cotoneaster Dielsiana, Senecio Greyii, Teucrium fruticans and many other interesting hardy shrubs. Beautiful autumn colour was present on a bush of Cercidiphyllum japonicum shown by The **Donard Nursery Co.** They also included the Tulip Tree, Enkianthus campanulatus, Cerastostigma Willmottianum, Salvia Gregii, Potentilla Farreri, many shrubby Veronicas, Spiraeas, Ericas, Olearias, Pittosporums and Prunus Pissardii and Berberis Thunbergii atropurpurea of rich colour.

The bright yellow Cassia corymbosa was well shown by Mr. G. **Reuthe** in his collection of trees and shrubs. His flowering examples also included various Hydrangeas, Berberidopsis corallina, Hoheria populnea, Magnolia grandiflora ferruginea, Lapageria rosea, Escallonia montevidensis, Araujia sericifera, Brugmansia (Datura) Knightii, Ceanothuses and Clematises. Mr. **Reuthe** also showed specimens of some of the rarer Conifers, Berberises and Rhus cotinoides of bright colour. On a table space, Messrs. **Stuart Low and Co.** displayed branches of the Fire Thorn, Berberises, Sumach, Pyruses and small Conifers. Messrs. **G. and A. Clark** set up Cydonias, Viburnum Opulus and Leycesteria formosa in fruit, with Spiraea Aitchisonii, Conifers and Berberises.

Brilliant autumn colour was shown on Azalea pontica, various Berberises, Vines and Rhus cotinoides by Mr. **T. Smith**, who also staged Lavatera assurgentiflora, Cytisus nigricans var. Carlieri and Potentillas in flower. Messrs. **D. Stewart and Co.** also staged good autumn colour as well as ornamental Crabs, small Conifers, Ericas and Clematises. Highly coloured

Vitises, Conifers, Pyracanthas, Berberises and Japanese Maples were shown by Messrs. Hollambys.

On a wall space, Messrs. Robert Veitch and Son set out an interesting collection of shrubs which included Berberis Bealei, Arbutus Andrachne, Lomatia ferruginea, Osmanthus Forrestii, Hippophae rhamnoides, various Magnolias and Conifers. A large bush of Leycesteria formosa was shown with various Berberises, Vitises and Ribes aureum, by Messrs. Patricks.

The Orpington Nurseries displayed a good selection of Conifers suitable for the rock garden with Althaeas, Cotoneasters, Berberises, Rhus typhina, and Cydonia japonica in fruit. Messrs. John Scott and Co. grouped Cydonia Wilsonii, carrying many large fruits, with various Hollies, Pyruses, Conifers and Berberises. Excellent specimen Bay trees were shown by Messrs. Robert Green and Co., and by Messrs. Harrods, Ltd.

Fruits.

At the far end of the new hall there were three splendid exhibits of fruits, easily the best of these being that set up by Mr. J. C. Allgrove. His trained trees of Plums, Peaches and Apples, all heavily fruited, were examples of the highest cultivation, the large, fan-trained trees of Plums President, Pond's Seedling and Jefferson, and smaller ones of Golden Drop and September Glory, calling forth special admiration, while the pot trees of Apples Madresfield Court and S. T. Wright, and Peach Dymond, also were grand specimens. In addition to the fruited trees, there were numerous dishes of excellent fruits of numerous Apples and Pears, all in grand condition and richly coloured. The large basket of Apple American Mother must have whetted many appetites, while other varieties represented included Cox's Orange Pippin, Celini, Peasgood's Nonesuch, Bramley's Seedling, Charles Ross, Wealthy, Rival, Ribston Pippin, Rev. W. Wilks, Ball's Pippin and Ellison's Orange, while among Pears outstanding dishes were of Marguerite Marillat, of enormous dimensions; Durondeau, Conference, Pitmaston Duchess and Beurré Hardy. There were also many attractive dishes of Plums Transparent Gage, Late Orange, Monarch and Count Althann's Gage. A very praiseworthy exhibit and well deserving the Gold Medal awarded it.

Messrs. George Bunyard and Co., Ltd., showed a representative collection of fruits of many Apples, including Cutler Grieve, James Grieve, Hormead's Pearmain, May Queen, King of the Pippins, Wealthy, Charles Ross, Ribston Pippin, wonderfully coloured; and Ellison's Orange, while they also showed good dishes of Pears Pitmaston Duchess and Conference.

Messrs. Laxton Bros. arranged baskets of numerous varieties of Apples and Pears, the background and sides of the exhibit being composed of trained cordon trees of Apples and Pears, all well fruited. Among the Apples shown, outstanding were Lord Lambourne, the new Laxton's Epicure, James Grieve, Cellini, Rival, Laxton's Superb and Charles Ross, while good dishes of Pears included Marguerite Marillat, Conference and Doyenné du Comice.

In the old hall, Mr. J. J. Kettle showed heavily fruited growths of several good late-fruiting Raspberries.

Michaelmas Daisies.

In the old hall, which was well filled with floral exhibits, Michaelmas Daisies, perhaps, provided the greatest display of colour.

The Gayborder Nurseries had a very attrac- the bed of these seasonable flowers, consisting of tall pillars of such good sorts as Maid of Athens, Mrs. G. Monro, Royal Blue, Margaret Ballard, Blue Gem and Elsa, over a groundwork of various floriferous varieties, including the Amellus varieties King George, Ultramarine, Fleuve Blue and Weinholtzii.

In the charming bank of blooms set up by Mr. F. Rich, surmounted by dainty sprays of several ericoides varieties, we noted good vases of Madame Emile Thoury, October Dawn, Rosette, Blue Eye and Miss Eisle, and baskets of several popular Amellus varieties.

Messrs. W. Wells, junr., were again well to the fore with Michaelmas Daisies, their massive wall group being very spectacular and embracing a wide range of varieties, chief among which were Barr's Pink, Margaret Ballard, Blue Gem and King of the Belgians. Among the Amellus varieties, arranged in masses along the front of the display, outstanding sorts were Ultramarine, very fine; Advance, Ethel, Charles Davis, Sonia and King George.

Mr. T. Bones had a very charmingly arranged group, the inflorescences being exceptionally clean and bright. Among his best tall-growing sorts were Una, Acme, Fairy, of very dainty and graceful habit and a special feature, and the brightly coloured Aldenham Pink; while good Amellus Asters included Ultramarine, General Pershing, Lilacina, Advance, Sonia, Bessie Chaplin and Daily Sketch.

In a charmingly arranged display, Mr. Ernest Ballard made a special feature of Silver Spray, a dainty ericoides variety, other good sorts which he showed well being Anita Ballard, very striking, associated with Maid of Athens; Beauty of Colwall, Blue Eyes, Cloudy Blue, Rosette, and Blue Gem in association with Mrs. George Monro.

In a compact but quite attractive mound of perennial Asters, Messrs. W. Wood and Son, Ltd., made a special feature of their brilliantly coloured, rather small-flowered, new variety named Red Rover, and they also included good sprays of Bright Rapture, Blue Prince, Maxima, Glowworm, very bright; October Dawn, and Muriel Chandler, a dainty, pale lilac-flowered sort of the ericoides type.

Chrysanthemums.

There were three excellent groups of early-flowering Chrysanthemums.

Messrs. Keith Luxford and Co. had lovely sheaves of Almond, Framfield White, Cranford, Uxbridge Pink, White Queen, Phoenix and Elsenham as a background to many other beautiful sorts, among which Perle Chattilonaise, Harvester, Pink Delight, Cranford Pink and Cranford Cream were much in evidence.

In a good bank of Chrysanthemums, Mr. J. W. Forsyth had pillars of fine blooms of Pink Beauty, Elsenham, Pink Delight, R. G. Collicott, Winnie Camden and Bronze Early Buttercup, and lovely vases of Alcalde, Mrs. Hutt, Armorel, Crimson Circle, Queen of the Yellows, Hollicot Yellow, Madame E. David and Harvester, while outstanding sorts in the corner group set up by Mr. W. Yandell were Phoenix, Harvest Glory, Mrs. Phil Page, Mrs. J. Pearson, Goacher's Crimson, Red Almirante and La Garonne.

Gladioli.

For so late in the season, the two large groups of Gladioli, staged by Messrs. R. H. Bath, Ltd., and Messrs. Dobbie and Co., Ltd., respectively, were especially noteworthy.

The former firm showed an extensive range of varieties, both primulinus and gandavensis, among the most striking being Schawben, Rose Ash, War, Xanthea, Flora, Athalia and Byron L. Smith, while Messrs. Dobbie and Co., Ltd. made a special feature of the variety Bertie Snow, staging many grand spikes, other good sorts which they showed well being Gertrude, Cavrick, Marvel, Dorothy Wheeler, Pfitzer's Triumph and David Airdrie.

Dahlias.

These were again much in evidence, the most striking group being that staged by Mr. J. B. Riding, who had a big bank of blooms chiefly of large-flowered Decorative sorts. Varieties which he showed exceptionally well included Amulet, W. D. Cartwright, Maud Johnson, Jersey Beauty, Grace Curling and Mabel Lawrence.

Mr. Charles Turner staged a fairly representative collection of Dahlias, as also did Messrs. G. W. Miller, who associated them with various seasonable hardy border flowers.

Outstanding varieties in the group of Dahlias set up by Messrs. H. H. Langridge and Co. included Couldson, Topaz and Jersey Beauty, while in the attractive exhibit arranged by Messrs. Jarman and Co., Jack Hobbs, Trentonian, Mabel Lawrence, Amun Ra, Peerless, Berengaria and Ullswater were specially worthy of note.

Carnations.

In a small but not unattractive group of Carnations, Messrs. Stuart Low and Co. showed charming vases of good blooms of Countess of Harewood, Sonny, Eileen Low, Sheila Greer, Happidais and others; while Messrs. Allwood Bros. included Wivelsfield White, Spectrum, Laddie, Topsy and other good sorts in their exhibit of perpetual-flowering Carnations, and also arranged a group of Dianthus Allwoodii varieties, prominent among which were Rachel, Barbara, Marion and Elizabeth.

Roses.

Several excellent groups of Roses were staged in the old hall and added greatly to the general bright effect.

Messrs. D. Prior and Son set up a representative collection which included specially good examples of Etoile de Hollande, Betty Uprichard, Madame Butterfly and Souvenir de Madame Boulet; while Messrs. Wheatcroft Bros. had excellent vases of many popular sorts, with Peter Pan and The Princess Elizabeth as special features. Mr. J. H. Pemberton also had a bright group of many good sorts.

In their representative group, Messrs. Alex. Dickson and Son, Ltd., had a lovely basket of good blooms of Flamingo, and very effective pillars of Betty Uprichard, Adele Crofton, Canary and Lady Inchiquin; while Messrs. Ben. R. Cant and Sons also arranged a bright and representative group of Roses.

Miscellaneous Exhibits.

Mr. George G. Whitelegg arranged a charming rock garden on tabling, with dwarf Conifers in variety suitably placed and plantings of various late-flowering hybrid alpine Pinks, Gentiana sino-ornata and G. Farreri, Zauschneria californica var. splendens, Dryas Sundermannii, Oenothera speciosa var. rosea, and other suitable flowering subjects.

Another attractive rock garden was that laid out by Mr. George E. P. Wood, who used, besides dwarf Conifers and suitable shrubs, such flowering subjects as Gazanias, Delphinium sinense, very bright; Ceratostigma plumbaginoides, and Verbena venosa; while Mr. H. Hemsley, in his rock garden, had shrubby Veronicas in flower; a well-fruited specimen of Cotoneaster horizontalis, and small groups of Origanum hybridum, Campanula Warley White, Cyclamen neapolitanum, alpine Pinks in variety, Viola Arkwright's Ruby, Nertera depressa covered with its orange fruits; Campanula muralis and various creeping Verbenas.

Messrs. Walter Blom and Son, Ltd., staged an extensive collection of various forms of Colchicum autumnale, while Messrs. Reamsbottom and Co. exhibited St. Brigid Anemones in association with Delphinium sinense. Mr. John Golding showed many vases of his variety of Scabiosa caucasica called goldingensis; Messrs. Isaac House and Son had a charmingly arranged group of the many fine forms of Scabiosa caucasica; the Misses K. and E. Hopkins had a mixed collection of herbaceous flowers, including the charming pink-flowered Aster Esther, of the ericoides section; and Messrs. E. J. Redgrove and Son, in their mixed collection of seasonable flowers, showed Michaelmas Daisies in variety, Kniphofias, late spikes of Delphiniums, Heleniums, Helianthus Monarch, and Lupins.

Mr. Amos Perry had an interesting mixed group containing, among other things, Solidago Gold Elf, Salvia azurea var. grandiflora, Pentstemon barbata, Kniphofias and Anthemis tinctoria, Perry's variety, with several alpine and other plants.

Mr. Gavin Jones showed Michaelmas Daisies, the rosy-purple-flowered Vernonia arkansana, Caryopterus Mastacanthus, alpine plants and various other subjects in an interesting group; while Mr. S. J. Goodliffe, besides showing various good Michaelmas Daisies, had fruiting shrubs, including Barberries and Cotoneaster microphylla, and flowering shrubs in Ceanothus azureus, Potentilla fruticosa var. Farreri, and the purple-foliaged Prunus Pissardii, Hazledene variety.

Messrs. B. Ladhams, Ltd. staged fruiting shrubs in association with Lobelias in variety, Asters, Salvia uliginosa, Eryngium Violetta, Montbretia King Edmund, and various Sidalceas. Messrs. G. and A. Clark and Messrs. Rich and Cooling, also had representative groups of herbaceous flowers; and Messrs. E. F. Fairbairn and Sons staged herbaceous Phloxes in many good sorts.

THIRD AUTUMN SHOW.

October 8 and 9.—In continuance of the policy of holding a series of special Autumn Shows, the Fruit and Vegetable Show was held at Westminster on these dates. The exhibits of fruits were all set out in the new Horticultural Hall, while the vegetables and several exhibits of autumn flowers were displayed in the old hall. The fruits generally were of exceedingly high quality, and the competition was equal to the average of other years, but we missed the many large competitive exhibits of hardy fruits that nurserymen staged for so many years at the Autumn Fruit Shows. But there were two particularly fine collections of pot-grown fruits, and several very interesting exhibits of such rarities at shows as the Cape Gooseberry and Banana. It was interesting to note that in this year, when the autumn colour of foliage is lacking, many of the Apples were unusually highly coloured. In the old hall there were several exceedingly good collections of vegetables and, while, no doubt due to the season, the competitive classes were not so well filled as usual, the quality was very creditable.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Frederick J. Hanbury, Mr. Richard G. Thwaites, Mr. J. E. Shill, Mr. H. G. Alexander, Mr. Charles H. Curtis, Mr. J. Wilson Potter, Mr. Stuart Low and Mr. A. Dye.

There were no groups before this Committee, and only two plants, both of which received recognition.

First Class Certificate.

Cattleya Heros (*C. Heliodor* × *C. Sunbeam*).—A fine addition to the brilliant autumn-flowering section of hybrids. The spike carried three glorious flowers of fair size and good form. The sepals and petals are golden-yellow, while the rounded lip is heavily veined with gold on an orange and cerise ground, with a ruby-coloured apex. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

Award of Merit.

Sophro-Laelio-Cattleya Jean (*Sophronitis grandiflora* × *Laelio-Cattleya Orange Blossom*).—A beautiful and brilliant new hybrid with a flattish flower of bright salmon-orange colour. The lip is clear yellow in the throat, with deep salmon-orange on the side lobes and at the slightly frilled apex. Shown by Messrs. H. G. Alexander, Ltd.

Floral Committee.

Present: Section A.—Mr. J. F. McLeod (in the chair), Mr. Arthur Turner, Mr. A. E. Vasey, Mr. D. B. Crane, Mr. James B. Riding, Mr. J. T. West, Mr. Hugh A. Dickson, Mr. W. B. Gingell, Mr. William Howe, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. R. Findlay, Mr. Charles E. Pearson, Mr. Courtney Page and Mr. W. D. Cartwright, Secretary.

Present: Section B.—Mr. E. A. Bowles (in the chair), Mr. George Yeld, Mr. W. G. Baker, Sir William Lawrence, Bart., Mr. L. R. Russell, Mr. A. Bedford, Mr. T. W. Taylor, Mr. F. G. Preston, Mr. Mark Fenwick, Mr. R. C. Notcutt, Mr. T. Hay, Mr. Hiatt C. Baker and Mr. N. K. Gould, Secretary.

At the meeting of Section A Committee, the members bade farewell to Mr. J. F. McLeod, who is leaving London and taking up residence in Scotland. Mr. William Howe conveyed to Mr. McLeod the good wishes of the Committee, and expressed regret that his long connection with the Floral Committee would be severed.

Awards of Merit.

Phaseolus Caracalla.—This curious and not unbeautiful member of the Bean family was introduced from India in 1690. It is a strong-growing climber and needs cultivation under glass. The large flowers are borne in stiff racemes, and the colour is white, cream and purplish-blue. The attractive flowers are of large size, and their great attraction lies in the abnormal development and spiral twisting of the vexillium. Shown by Mrs. Roper, Forde Abbey, Chard, Somerset.

Zephyranthes Atamasco.—The Atamasco Lily, introduced from Virginia in 1629, is a well-known bulbous plant, and one that was figured in *Bot. Mag.*, t. 239, under the name of Amaryllis Atamasco. Three hundred years have elapsed since its introduction, so the award given was something in the nature of a long-deferred birthday present. Z. Atamasco has long, linear, deep green leaves and erect, elongated, Crocus-like flowers that are white, with a green base and golden anthers. It is a good hardy subject for the rock garden, a special border, or the cold greenhouse. Shown by Sir William Lawrence Bart. (gr. Mr. W. Everatt), Burford, Dorking.

Chrysanthemum Snowflake.—A fine pure white variety, bearing shapely flowers in long, elegant sprays.

Chrysanthemum Cavalier.—A very useful early-flowering variety of graceful form; terra-cotta, with gold tips. These two varieties were shown by Mr. H. Shoesmith, junr.

For Trial at Wisley.

The following were selected for trial at Wisley.

Chrysanthemum Pink Profusion.—Small, pink flowers, carried freely in long sprays. From Mr. H. Shoesmith, junr.

Dahlia Sunny Clacton.—A single variety, white, with a wide band of scarlet down each side of every segment; but the colour ends abruptly and does not meet at the end of the ray florets. From Mr. E. Knight, Clacton.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (in the chair), Mr. E. A. Bunyard, Mr. H. S. Rivers, Mr. W. H. Divers, Mr. F. Bostock, Mr. J. Wilson, Mr. J. Basham, Mr. R. H. Hall, Mr. H. Markham, Mr. A. C. Smith, Mr. W. F. Giles, Mr. A. Bullock, Mr. P. D. Tuckett, Mr. F. Jordan, Mr. T. Pateman, Mr. W. J. Earl, Mr. A. Poupart, Sir W. G. Lobjoit, Mr. G. Woodward, Mr. E. A. Laxton, Mr. E. Neal, Mr. A. W. Metcalfe, Mr. W. Poupart, Mr. J. G. Weston, Mr. J. C. Allgrove, and Mr. A. N. Rawes, Secretary.

Award of Merit.

Apple Howgate Wonder.—Among the several new Apples shown before this Committee, this received recognition, and was considered worthy of the above award. It was also recommended for inclusion in the commercial fruit trials at Wisley. It is a large culinary Apple, of the Beauty of Kent type; round-conical in shape, about four inches across and about the same in depth. The eye is closed and set in a ribbed basin of medium size, while the very short, thick stalk is set in a broad and deep cavity. The flesh is very firm; the colour yellowish-green, flushed and streaked with red on the exposed side. Shown by Mr. George Wrathen, 4, Hope Cottages, Howgate Lane, Bembridge, Isle of Wight.

The Fruit Show.

Dessert Fruit Classes.

There were nine collections of nine dishes of ripe dessert fruits, and the first prize was awarded to the Duke of Newcastle (gr. Mr. S. Barker), Clumber, Worksop, for an exhibit of which the most noteworthy feature was the beautiful colouring of the Peaches and Apples. The bunches of Muscat of Alexandria Grapes were only of moderate quality. The Apples were Cox's Orange Pippin and Lady Palmerston, which, with Sea Eagle Peach, Souvenir du Congrès Pear and Universe Melon were of very high quality. The second prize was awarded to the Rt. Hon. Lord Swaythling (gr. Mr. F. J. Rose), Townhill Park, Southampton, whose Apples and Pears were excellent. The varieties were Wealthy and Cox's Orange Pippin Apples and Louise Bonne of Jersey Pears. There were also highly coloured fruits of the Nectarine Peach and very large bunches of Mrs. Pearson and Mrs. Pince Grapes. In the third prize exhibit of T. S. Hall, Esq. (gr. Mr. J. Richardson), Cricket St. Thomes, Chard, there were the best Muscat of Alexandra Grapes in the class and the dishes of Barrington Peach and Cox's Orange Pippin Apple were also of high quality. Mrs. A. A. Hornby Lewis (gr. Mr. A. E. Friend), Danesbury Park, Marlow, who was fourth, had very good dishes of Charles Ross Apple and Reine Claude de Bavay Plum.

Although there were only two exhibits of six dishes of dessert fruits they were of very good quality. The first prize was won by Viscount Hambledon (gr. Mr. W. Turnham), Greenlands, Henley-on-Thames, who showed Muscat of Alexandria and Appley Towers Grapes, Lady Palmerston Peaches of beautiful orange colouring, Cox's Orange Pippin and Ellison's Orange Apples, and Emerald Gem Melon. Lt.-Col. F. J. B. Wingfield Digby, D.S.O. (gr. Mr. E. Hill), Sherborne Castle, Dorset, had, in his second prize exhibit, excellent bunches of Gros Colmar Grapes, Golden Eagle and Sea Eagle Peaches.

Grape Classes.

The exhibits of Grapes occupied considerable space, and while the quality generally was good, the bunches of Muscat of Alexandria were not equal to those of most former years.

Of the three exhibits of four bunches, the best was shown by Lord Hotham (gr. Mr. J. S. Coates), Dalton Hall, Beverley, who showed Muscat Seedling as a large bunch of rounded, amber berries, Madresfield Court, Muscat Hamburgh and particularly well-coloured Gros Colmar. The Duke of Newcastle was second, with large bunches of Gros Guillaume, Mrs. Pince, of good colour, and Muscat of Alexandria. T. S. Hall, Esq., who was third, had good bunches of Muscat of Alexandria and Alicante. There were six exhibits of two bunches each of a white and a black variety. Lord Hambledon was first with excellent Muscat of Alexandria and large bunches of Appley Towers. Miss Durning Lawrence, King's Ride, Ascot, was second with Muscat of Alexandria and Alicante, and C. B. O. Clarke, Esq. (gr. Mr. J. Kidd), Wistern Park, Steyning, was third.

The following classes required two bunches each of specified varieties. G. Meyer, Esq. (gr. Mr. R. Cottam), Wistler's Wood, Woldingham, was first, with well-coloured bunches of Lady Downes; the second prize was not awarded. Lord Swaythling and G. Meyer, Esq., were first and second, respectively, with large bunches of Mrs. Pince. Ten exhibitors staged Alicante and all had bunches of considerable merit; the Hon. Mrs. Cufton (gr. Mr. H. H. Brown), Castle Hill, Englefield Green, was first with almost perfect bunches and Lord Hotham was a good second. Lord Hotham, the only exhibitor, was awarded the first prize for very good bunches of Madresfield Court Grapes. Four exhibitors staged Appley Towers, and the first prize was awarded to the Duke of Newcastle for very good bunches, while C. G. A. Nix, Esq. (gr. Mr. E. Neal), Tilgate, Surrey, was second with smaller, but deeply coloured bunches. In the class for any other black Grape, C. J. A. Nix, Esq., was first, with reddish Muscat Hamburgh, and Mrs. F. de Lisle John (gr. Mr. R. Currie), Mereworth Lawn, Boro Green, Kent, was second, with smaller but deeply coloured Black Hamburgh.

The leading bunches of Muscat of Alexandria Grapes in the two bunch class were of better quality than in the dessert fruit classes. Viscount Hambledon was first, and Miss. Durning Lawrence was second, with good bunches. There were six exhibits of any other white Grape, and Lord Hotham was an easy first, with excellent bunches of Muscat Seedling. Sir William Lawrence, Bart., Burford, Dorking was second, with Chasselas Napoleon.

Melons were particularly good, and of the nine shown the very best was Lord Swaythling's Blenheim Orange. The Hon. Mrs. Cufton was second with Countess, and Mrs. Hornby Lewis was third with Hero of Lockinge.

Outdoor Fruit Classes.

The best collection of one dish each of thirty varieties of hardy fruits was staged by Major C. A. Drummond (gr. Mr. L. H. Smith), Cadland Park, Southampton, and this was especially noteworthy for the shapely and highly coloured dishes of Apples Kondine, Herring's Pippin, Cox's Orange Pippin, Charles Ross and James Grieve. He also showed, in Doyenné Bussoch, Triomphe de Vienne and Marguerite Marillat, exceedingly good Pears. There was also a fine dish of Thomas Rivers Peaches, and one of a green Fig. Lord Swaythling was a good second, and he showed excellent Peasgood's Nonesuch and Gascoyne's Scarlet Apples. Souvenir du Congrès and Marie Louise Pears, Late Duke Cherries and Coe's Golden Drop Plums. Lieut.-Col. Wingfield Digby was third.

In the class for twelve varieties of hardy fruits, Sir Randolf Baker, Bart. (gr. Mr. A. E. Usher), Ranston, Blandford, was first, with a magnificent exhibit. His dishes of Wealthy, Peasgood's Nonesuch and Cox's Orange Pippin Apples were of the ideal size and beautifully coloured. He also included President Roosevelt and Doyenné du Comice Pears, and Rivers' Late Orange and Coe's Golden Drop Plums of high quality. J. H. London, Esq. (gr. Mr. J. Bond), Olantigh, Wye, was second, and he staged Charles Ross and Peasgood's Nonesuch Apples, Triomphe de Vienne Pears, and Late Orange Plums, of excellent quality.

The two exhibits of twenty-four varieties of Apples were also of considerable merit. Major C. A. Drummond was first, and he had particularly good dishes of Ribston Pippin, James Grieve, Allington Pippin, Charles Ross and Kondine dessert Apples, and of the culinary varieties The Queen, Rev. W. Wilks, Cox's Pomona and Peasgood's Nonesuch. F. C. Stoop, Esq. (gr. Mr. G. Carpenter), West Hall, Byfleet, was a good second, and his dessert varieties included Charles Ross and Benn's Red of high colour, while the very best culinary sorts were Bismarck, Warner's King and Tom Putt. Four exhibitors staged twelve varieties, and here again Sir Randolf Baker, Bart., was first, with beautifully coloured Rival and Charles Ross of the dessert varieties, while his dishes of Mere de Ménage, Rev. W. Wilks and Peasgood's Nonesuch were ideal. J. H. London, Esq., who was second, also staged dessert Apples of high colour. His varieties included Rival, Charles Ross and Gascoyne's Scarlet and he had Lord Derby and Loddington among his cooking Apples. C. G. A. Nix, Esq., was third.

There was a good class of six dishes of cooking Apples where Major C. A. Drummond, who included Mere de Ménage, Warner's King, Lane's Prince Albert and Lady Henniker of excellent appearance, was first, and the Earl of Bessborough (gr. Mr. T. A. Tomalin), Stansted Park, Emsworth, was a good second, with splendid dishes of Gascoyne's Scarlet, Herring's Pippin, Charles Eyre and other good sorts.

The fifteen exhibits of six dessert varieties were admirable in their even shape and typical colour. Mr. J. A. Stidston, Bishopsteignton, Devon, was first, and he included excellent dishes of Lord Lambourne, James Grieve Charles Ross and Wealthy. H. C. Sutton, Esq. (gr. Mr. A. D. Smith), Newbury, had, in his good second prize exhibit, Rival, The Houblon and Charles Ross of high colour.

A gratifying number of exhibitors staged eighteen dishes of dessert Pears, and all were of considerable quality. The very best exhibit was staged by Lt.-Col. Wingfield Digby, whose best dishes were of Beurré Hardy, Souvenir du Congres, Beurró Bosc, Doyenné du Comice and St. Luke. Mrs. Winterbottom showed, in a good second prize exhibit, grand dishes of Doyenné Bussoch, Marguerite Marillat, Noveau Poiteau and Beurré Alex. Lucas. Although there were only two exhibits of nine dishes of dessert Pears, they were of excellent quality. Sir Randolf Baker, Bart., included, in his first prize exhibit, Durondeau, Doyenné du Comice, President Roosevelt and Beurró Baltet Pére, of fine appearance. The Hon. Henry Coventry (gr. Mr. J. J. Jackson), Lendring Hall, Stoke-by-Wayend, was second, and his best dishes were of Charmontel, Charles Ernest, Doyenné Bussoch and Beurré Hardy.

There were eight exhibits of three dishes of cooking Pears. Lt.-Col. Wingfield Digby was first with Beurré Clairgeau, Catillac and King Edward. Mrs. Winterbottam (gr. Mr. J. Brown), Oakley Place, East Grinstead, included Bellisime d'Hiver and Beurré Clairgeau in a good second prize exhibit.

Plums were an especially good class, and the eleven dishes were all of praiseworthy quality. Lady Mary Morrison (gr. Mr. H. H. Mills), Fonthill House, Tisbury, had, in splendid fruits of Late Orange, Coe's Golden Drop and President, the best three dishes. Major Drummond, who was second, showed excellent Coe's Golden Drop and Grand Duke. There were no fewer than twenty single dishes of Plums. Sir Randolf Baker, Bart., showed, in his first prize dish of Jeffersons, the best Plums in the show, and Lady Mary Morrison was second, with almost as good fruits of the variety President. Damsons and/or Bullaces were also a strong class. W. H. Cohen, Esq. (gr. Mr. A. V. Skinner), Amersfort Gardens, Berkhamsted, was first with King of Damsons, and Lt.-Col. Sir Walter Halsey, Bart. (gr. Mr. T. Avery), Gaddesdon Place, Hemel Hempstead, was second, with rich yellow fruits of Langley Bullace.

The class for Raspberries brought six good dishes. Capt. R. B. Brassey (gr. Mr. G. J. Quinn), Cottesbrooke Hall, Northampton, was first with the variety Lloyd George, and Brigadier-General R. G. A. Howard Orpee, M.C., D.S.O. (gr. Mr. F. G. Cooke), Stoke Place, Slough, was second with a very good dish of Queen Alexandra.

Market Growers' Classes.

Although there were only two exhibits in each of the classes for Grapes in chip baskets, they were of exceedingly good quality. Messrs. J. Almond and Son, Effingham, won both first prizes. Their white Grapes were splendid bunches of Muscat of Alexandria, and the black were equally good samples of Alicante. Mr. A. G. Bury, Byfleet, was a good second in both classes.

The judges pointed the several exhibits of four British standard boxes of Cox's Orange Pippin Apples. The quality was not so high as in former years, and the first prize exhibit of Mr. H. J. Russell, Hatfield Peverel, obtained only 71½ points from a possible 100. The Reading University College was second.

The class for four similar boxes of any other dessert Apple was particularly good, and here the Reading University College was first with boxes of Worcester Pearmain Apples of such dazzling colour and general excellence that, if pointed, would certainly have approximated the maximum for all qualities. Mr. Glover Long, Higham, was second with exceedingly good boxes of Charles Ross.

The class for four boxes of Bramley's Seedling brought very good exhibits, and here Messrs. W. Brice and Son were first with admirable boxes, and Mr. Glover Long was a good second. Splendid Newton Wonder, shown by Messrs. W. Brice and Son, were first in the class for four boxes of any other cooking variety, and Mr. Glover Long was second with nearly as good Lord Derby. The many three one-layer boxes of Cox's Orange Pippin presented a tempting appearance. Mr. H. G. Evans, Hatfield Peverel, was first, and Mr. J. B. Douglas, also of Hatfield Peverel, was second. In the similar class for any other dessert variety, Mr. Glover Long was first, with brilliant fruits of Worcester Pearmain, and the Reading University College was a close second with delicately coloured James Grieve.

Pears were also well shown. Messrs. F. and J. Neave, Mackendale, had the best three one-layer boxes of Conference, and Messrs. W. Brice and Sons were a close second. The best three boxes of Doyenné du Comice were shown by Messrs. F. and J. Neave and Messrs. W. Brice and Son were again second, both showing first-rate fruits admirably packed.

⁂ The remainder of the report of this show will appear in our next issue. Eds.

NATIONAL CHRYSANTHEMUM.

The Floral Committee met at the Royal Horticultural Hall, on Monday, October 7, and made the following awards :—

Golden Chestnut. *II.*1b.—A rich chestnut variety, with golden reverse ; the florets are broad, slightly cupped, and make up a substantial bloom. This is stated to be a good variety for garden decoration ; about two feet tall.

Brassy. *II.* 1c.—In this bright chestnut, gold-tipped variety, the blooms are of medium size but elegant form ; good stems and foliage.

Cactus. *II.* 1b.—A fairly large, elegant Japanese variety with pointed florets ; chestnut-bronze, with gold reverse. These three varieties were shown by Mr. J. Barrell.

Snowflake. *II.* 1c.—A beautiful and elegant pure white variety with blooms of moderate size borne in long, graceful sprays ; very free.

Nelrose. *II* 1b.—This very distinct variety carries fairly large and substantial blooms composed of broad, stiff florets that incurve a little at the tips. The colour is deep lilac-pink of a shade seen in some of the darker Lilacs.

Cavalier. *II.* 1b.—An effective variety of fine form and clean colour ; bronzy-terra-cotta, with small gold points. These last three were shown by Mr. H. Shoesmith, junr.

ALDERLEY EDGE AND WILMSLOW HORTICULTURAL AND ROSE.

Early in September, the above Society brought its summer session to a close with a visit to Alderley Park, Chelford, and the party, which numbered nearly fifty, was conducted over the gardens by Mr. Summerfield, the gardener.

A notable feature of Alderley Park Gardens is the extensive walled-in garden, some seven or eight acres being so enclosed, the whole being divided into two portions by a central wall. One half, known as the Pond Garden, is laid out as an ornamental flower garden, and the other is devoted to fruit and vegetable culture ; in both sections the visitors found much to admire, and high culture was evidenced.

The spacious lawns, with specimen Cedars and other Conifers here and there, were inspected, and the wild garden, with its large plantings of Rhododendrons and other suitable subjects, was also much admired, while the magnificent views from the lawns across the Park in many directions presented scenes best described as highest examples of typical English landscape.

At the close of the visit, Mr. Summerfield and Mr. Williams, who also acted as a guide, were thanked for their kindly interest and services, and the members expressed their gratitude to Lord and Lady Stanley for permission to inspect the gardens.

Obituary.

W. Clark.—Born in 1857, Mr. Clark served his apprenticeship at Melville House, Fife, and afterwards gained experience in the gardens at Dunlop House, Wishaw House and Lennox Castle, before he became foreman at Broadmeadows, Selkirkshire. After spending some time at Altyre, he became head gardener to J. Roberts, Esq., at Bannerfield, Selkirk, where he continued to serve under the son, F. Roberts, Esq., until June of the present year, when he retired owing to ill-health. He passed away on September 28, at the age of seventy-one years. Mr. Clark was a capable gardener, and was particularly successful in the cultivation and raising of Odontoglossums and Chrysanthemums, at Bannerfield, and at one time he was a frequent exhibitor at the Edinburgh shows. He leaves a widow, eight daughters and three sons to mourn his loss. One of his sons is Mr. W. Clark, Superintendent of the Public Parks and Gardens at Southport, and Superintendent of the Southport Show.

ANSWERS TO CORRESPONDENTS.

Begonias Failing.—*C. G.* We found no trace of any disease organisms on the Begonia plant. The trouble may be partly due to some cultural defect, such as faulty watering during the recent bright weather. Sections were made of the main stem, petioles and main veins, and it would appear that there is something in the compost, or added to the soil in watering, that is distasteful to the plants. Repot the plants in fresh compost and pay attention to the source from which you derive your water.

Chrysanthemums Diseased.—*H. S. F.* and *A. Y.*—The specimens of diseased Chrysanthemums submitted for examination were insufficient for the purpose of diagnosing the trouble. Only shoots were received, and as the centre of infection may probably be traced to either the roots or the lower part of the stem, it is essential to send an entire plant before we can report on the trouble.

Chrysanthemum Infested with Insects.—*E. M.* The Chrysanthemum foliage has been infested with thrips and aphides, numerous moult skins of both pests being present on the lower surface of the foliage. The plants also appear to be suffering from "scorch," but we would prefer to examine an entire plant before we can definitely state that this is the sole trouble.

Failure of Apples.—*W. J. G.* If you had given us a little more information about your soil, how it was prepared, the position and the way the trees were planted, we might have been better able to help you. The wood sent shows the trees are suffering from lack of nourishment, and although basic slag and potash are a great help towards success, a dressing of farmyard manure would have been of much more value in your case. See that the ground is not suffering from lack of lime, and give a good dressing of decayed manure around each tree, to be lightly turned in, or to be left on the surface if the trees are on grass, to be followed with the same treatment the following year. The Tomato sent is of no special value unless you can get a nurseryman to list it.

Gladioli Diseased.—*A. W. M.*, *K.*, and *E. M.* The samples of Gladioli corms received show that they are affected with the Fusarium Wilt Disease. (See reply to *H. P.* in *The Gardeners' Chronicle* of September 14.)

Grapes Unsatisfactory.—*W. E. B.* The Grapes sent for examination were smashed in transit, and the only trouble we could detect was shanking, which would cause the berries to become soft. As the vine is old and partially in an outside border, this may partly be the cause of the trouble, and it would hardly pay to renovate or renew the border. A Black Hamburgh vine, being hardier, would not suffer to the same extent, and would carry twenty bunches easily. If you took up a young rod from the base you could remove the old vine in a year or two and prevent a recurrence of the trouble.

Muscat Grapes Unhealthy.—*F. T. B.* The scorched appearance of your Muscat leaves is entirely due to red spider eating all the nourishment out of them, and not to scalding. If you examine the leaves carefully through a lens you will find they are infested with red spider and their eggs, and naturally the oldest leaves will fall first. You may have checked the spider early in the season, and would, no doubt, have destroyed the eggs if you had persevered with your treatment. Carefully wash the house and dress the vines with Gishurst Compound during the winter months, and the walls with hot lime-wash and sulphur. There was a large amount of shanking among the berries. It is difficult to state how this has arisen; it may be caused by over-cropping, destruction of the foliage by red spider, checks and chills, or it may be caused by the border becoming dry at the time when the vines most need water. In your case it cannot have resulted from the roots getting into cold subsoil, or the border becoming sour, or the result of any one special cause, but a variety of concurrent causes. Avoid any of the above evils and you should not be troubled further with shanking.

Muscat Grapes.—*J. D.* As the bunch of Muscat of Alexandria Grapes was in an advanced state of fermentation on arrival, it was difficult to form a correct opinion of the rust on the berries. There are many causes to account for a rusty appearance, and when once it is produced there is no remedy. It is caused when the skin is young and tender and generally before the Grapes have stoned. Cold currents of air are most suspected, especially when the vinery is very hot, close and moist, and then suddenly, on some bright morning, cold air is admitted too freely; the use of sulphur before the stoning period; and overheated pipes which produce a parched atmosphere, especially in early houses where a good deal of firing is used. Scorching and scalding of the leaves and berries are both caused by the badly arranged or late ventilation while the atmosphere and often the bunches themselves are charged with moisture. Muscat of Alexandria and Lady Downe's are varieties most subjects to rust disfigurement, especially if grown in a mixed collection. The temperature should never be allowed to fall too low towards early morning. Always endeavour to maintain a slightly drier atmosphere before the stoning period, by admitting a little more air early on fine mornings, thus preventing a close, warm atmosphere saturated with moisture. After stoning, plenty of moisture must be provided, as with its immense leaf surface the vine needs a constant supply of water at the roots.

Names of Fruits.—*Altho.* Pear Autumn Bergamot.—*J. C.* Apples: 1, probably Wealthy; 2, Bismarck; 3, Allington Pippin; 4, not in character, probably American Mother; 5, also out of character, probably Lane's Prince Albert.

Names of Plants.—*G. B.* Amaryllis Belladonna.—*G.* 1, 2 and 3, Pittosporum tenuifolium; 4 and 5, P. eugenioides; 6, 7, 8 and 9, P. tenuifolium; 10 (? number missing), P. crassifolium or P. Ralphii, but the specimen was very shrivelled; P. crassifolium has a revolute margin to the leaves.—*I.* Tsuga Brunoniana.

Vine Roots Unhealthy.—*H. N.* The vine roots are free from Phylloxera infection. They are, however, very unhealthy indicative of having grown in a stagnant border. We suggest that you carry out the suggestions given in answer to your first enquiry.

Communications Received.—A. W.—T. P.—W. G.—H. D.—R. G.—E. B.—W. C.—G. H. H.—A. C.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the *Official Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

27,317.—Burton, T.—Grading and marketing fruit. September 9.

27,622.—Goldschmidt Akt.-Ges., T.—Destroying pests and germs. September 11.

27,654.—Moore, T. F.—Soil drainage device, etc. September 11.

37,907.—Thompson, F. M.—Grafting or budding knife. September 13.

27,519.—Willetts, H.—Garden rollers. September 10.

Specifications Published.

318,572.—Bomford, D. R., and Alley, S. E.—Horse or traction-hoes or like agricultural machines.

318,746.—Schafer, J.—Hand digging-tools for making holes and ditches.

318,456.—Zimmermann, L.—Devices for lifting Turnips and like root crops.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

Abstract Published.

316,122.—Manures.—Gardner, D., 37, Rue Charles Floquet, Reuil, Seine-et-Oise, France.

Titanium compounds, other than nitrides and free from or containing only traces of iron, are added to fertilisers containing fixed nitrogen, potassium salts or phosphates. The titanium compounds may be associated with manganese compounds, and are used in small, preferably catalytic, proportions only. The titanium compounds may also be associated with silica, and lime, baryta, or magnesia. Titanium dioxide, calcium or other titanates, sphene, ores containing titanium and manganese; a slag having the formula $MgOTiO_2SiO_2$, obtained as described in Specification 207,247, and other slags containing manganese silicate and titanate, also obtained as described in the same specification, are mentioned as suitable titanium compounds. In one example, potassium sulphate is mixed with sphene; in a second, ammonium sulphate is mixed with magnesia; silica and titanium dioxide; and in a third, superphosphate is mixed with titanium dioxode and manganese dioxide.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the *Official Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

RODAGRIP.

504,485.—Preparations for destroying vermin.—The firm trading as Rodogrip Manufacturing Company, 33, Hertford Street, Coventry. September 18.

DUCE.

504,805.—Cutlery and edge tools.—Herbert William Batty Saunders, trading as H. B. Saunders & Co., 5, Brunswick Terrace, Weymouth, Dorset, and 83, Upper Thomas Street, London, E.C.4. September 11.

INSPRO.

504,348.—Chemical substances used for agricultural and horticultural purposes.—Cecil Thomas Lewis, Arthur George Falkner, and John William Battersby, trading in co-partnership, 16-17, Devonshire Square, London, E.C.3. September 11.

NIKOPREN.

505,302.—Chemical substances used for agricultural and horticultural purposes.—Bayer Products, Limited, 31 to 34, Basinghall Street, London, E.C.2. September 11.

MARKETS.

COVENT GARDEN, Tuesday, October 8, 1929.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.... ...	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	30 0–36 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums	18 0–24 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0

	s. d. s. d.
Erica gracilis, per doz. ...	30 0–36 0
—nivalis, per doz.... ...	30 0–42 0
—the above in 60's per doz.	12 0–15 0
—the above in thumbs, per doz. ...	8 0—9 0
Marguerites, white, per doz.... ...	12 0–15 0
Nephrolepis, in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's per tray of 15 ...	2 6—3 0
Solanums, 48's, per doz. ...	15 0–18 0
—60's, per doz.	9 0–10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Acacia (Mimosa), per bun. ...	— 1 6
Adiantum decorum, doz. bun.	8 0—9 0
—cuneatum, per doz. bun. ...	7 0—8 0
Arums (Richardias), per doz. blooms	4 0—6 0
Asparagus, plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „ ...	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 3—1 6
—short „ ...	0 6—0 9
Carnations, per doz. blooms...	2 6—4 6
Chrysanthemums, bronze, per doz. blooms...	2 0—4 0
—white, per doz. blooms ...	2 0—5 0
—yellow, per doz. blooms...	2 0—5 0
—pink, per doz. blooms ...	2 6—5 0
—bronze, sprays, per doz. bun.	5 0–10 0
—white, sprays, per doz. bun.	5 0–10 0
—yellow, sprays, per doz. bun.	5 0—9 0
—pink, sprays, per doz. bun.	8 0–12 0
Cornflowers, blue, per doz. bun.	2 0—2 6
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Foliage—	
Ampelopsis leaves, per doz. bun....	4 0—5 0
Hardy foliage, long in variety, per doz. bun.... ...	4 0–12 0

	s. d. s. d.
Forget-me-nots, per doz. bun.	9 0–10 0
Heather, white, per doz. bun.	— 12 0
Lilium longiflorum, long, per bun. ...	— 3 0
——short, per doz. blooms	3 0—3 6
—speciosum album, long, per doz. ...	4 0—5 0
—auratum, per doz. blooms .	4 0—6 0
Lily-of-the-Valley, per doz. bun.	24 0–30 0
Marigolds, per doz. bun. ...	1 6—2 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0–42 0
Physalis, per doz. bun. ...	18 0–24 0
Roses, per doz. blooms—	
—Columbia ...	2 6—3 6
—Richmond ...	2 0—3 6
—Yellow ...	2 0—3 6
—Molly Crawford	1 6—2 6
—Mad. Butterfly	2 0—3 6
Scabiosa caucasica, per doz. bun. ...	3 0—5 0
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	5 0—6 0
—white, per doz. bun.... ...	4 0—6 0
—yellow, per doz. bun. ...	4 0—5 0
Stocks, double white, per doz. bun.... ...	4 0—6 0
Violets, single, per doz. bun.	3 0—4 0

Remarks.—The general conditions already indicate some improvement in business in this department, and prices were firmer this morning for best quality blooms, especially for Carnations, Roses, Lilium longiflorum, Gardenias, Stephanotis and Lapagerias. Chrysanthemum blooms of medium size are still plentiful, but special white blooms continue limited in quantity; a few large blooms of white, pink and yellow are now on sale, but are so far in little demand at 10s. to 12s. per dozen. Michaelmas Daisies and Gladioli are now finishing, also good Physalis. Single Violets are arriving in good condition, also single Anemones. Richardias are now on sale in fair condition. The French season of Solanum berries, Capsicums and bunches of Acacia (Mimosa) has commenced. Business begins to show some activity in the pot plant section, the chief attraction being flowering plants of Erica nivalis and E. gracilis, in excellent condition. Other lines are Chrysanthemums and Solanums. Ferns and Palms, all sizes, are now much finer in quality and are selling more freely; some well-grown Physalis in forty-eights are very attractive just now for decorative purposes.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Cox's Orange Pippin, tray	4 0–10 0
—½-bushel case	6 0–15 0
—James Grieve, per tray ...	3 0—6 0
—Worcester Pearmain, per bushel-case...	10 0–18 0
per ½-bushel...	3 0—6 0
—Bramley's ...	4 0—8 0
—Derby ...	3 0—6 0
—Jonathan ...	— 15 0
—Gravenstein	10 0–12 0
—Warner's King, per bushel ...	4 0—7 6
—Nova Scotian, Cox's Orange Pippin, ½-barrel	20 0–30 0
Bananas, per bun.... ...	11 0–19 0
Grapes, English—	
—Alicante ...	1 0—2 6
—Gros Colmar	1 6—3 0
—Muscat of Alexandria ...	2 0—5 0
—Canon Hall...	2 0—6 0
—Black Hamburgh, per lb.	1 0—1 6
Grape Fruits ...	25 0–35 0

	s. d. s. d.
Lemons, per case—	
—Messina ...	14 0–25 0
—Naples ...	24 0–35 0
Melons, each ...	1 6—4 0
Nectarines, per doz.... ...	4 0–18 0
Nuts, Cob, per lb.	0 6—0 7
Oranges—	
—Cape Navels, per case ...	18 0–21 0
—Valencia ...	12 0–15 0
—Brazilian ...	12 0–14 0
Peaches, per doz.... ...	6 0–18 0
Pears, English—	
—Pitmaston Duchess ...	5 0—7 0
—Buerré Hardy, per ½-sieve ...	4 0–10 0
—Comice, per doz.... ...	2 0—6 0
—Fertility ...	3 6—4 0
—Conference, per ½-sieve ...	4 0—6 0
—Californian—	
—Buerré Hardy	20 0–22 6
—Comice, per ½-case	12 0–14 0
Pineapples, case	21 0–36 0
Plums—	
—Damsons ...	5 0—7 0
—Prunes ...	7 0—8 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, French, per lb. ...	0 8—1 6
—Guernsey, per lb.	0 9—2 0
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-bushel ...	5 0—7 0
Cabbage, per doz.... ...	1 6—2 6
Carrots, per ½-bag, washed	4 0—6 0
Cauliflowers, flat, per doz. ...	3 0—6 0
Endive, French, per crate, 18's and 24's ...	5 0—6 0
Lettuce, Cabbage, 18's, 24's ...	3 0—4 6

	s. d. s. d
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	2 6—3 6
—broilers ...	1 6—2 0
Parsnips, per cwt. ...	4 0—5 0
Potatos, cwt ...	3 0—6 0
Tomatos, English, per box of 12 lbs.—	
—pink... ...	4 0—6 0
—pink and white	4 0—6 0
—white ...	2 0—3 0
—blue	2 0—3 0
—Guernsey ...	3 0—3 6
—Jersey ...	2 6—3 0
—Dutch, per tray, 28 lbs. .	3 6--4 0
Turnips, per doz. bun.... ...	4 0—6 0

Remarks.—There has been some falling off in the volume of produce available, as compared with recent quantities. The demand, however, is fairly stable and price levels all round have shown no undue fluctuations. In the orchard fruit section, best Apples are still making quite good prices, and the recent glut of "drop" and second grade fruits has disappeared, bringing much firmer conditions. There are some imported Apples available, mainly from North America, the best of which are selling freely. A few good English Pears are now meeting a better demand and sell well. In the hothouse fruit department, the tone is good, and the Grapes, Peaches, Nectarines, and Melons are selling moderately well. English Tomatos Show an improved business and good marks are being inquired for, while better conditions are ruling for Jersey outdoor Tomatos. The Cucumber trade is firm and better prices are the rule. Hothouse Beans show a gradual rise in prices, and this section will probably continue to do well through the winter. Some Beans from Madeira are now on the market, and have sold well this week. Cultivated Mushrooms continue to sell freely at higher rates, and prices are good, even for field Mushrooms. Except for Damsons and Prunes, the Plum crop has practically finished what should be a satisfactory season from a grower's point of view. Green vegetables are selling fairly well, as are all salads. The Potato trade is a shade firmer, with some expansion in the demand.

GLASGOW.

The markets were quiet and uninteresting during the past week. Spray Chrysanthemums varied in price from 2½d. to 6d. per bunch, all colours, and disbudded blooms were worth from 8d. to 1s. 3d. for 6's; while specials made 1s. 6d. to 2s. Carnations ranged from 2s. to 3s. 6d. per dozen; Roses, 2s to 3s 3d.; Calendula, 1s. 6d. to 2s. per dozen bunches; Gladioli, 2d. to 4d. for 3's; Heather, 8d. per bunch; Richardias, 3s. 6d. to 4s. 6d.; Smilax, short, 9d.; medium, 1s. 3d. and long, 1s. 6d.

In the fruit section, American Apples were quoted 15s. per case for Wealthy; 13s. to 14s. 6d. for Gravenstein; and Virginia York Imperials, in barrels, 25s. English cooking Apples sold at 12s. 6d. per half-barrel; Victoria Plums, 3d. to 8d. per lb.; Burnets, 1½d. and 2d.; Damsons, 3½d. and 4d.; hothouse Grapes, Gros Colmar, 3s. 6d. per lb., Muscats, 4s. 6d.; South African Oranges, 15s. to 20s. per case; Sunkist (Californian), 18s. to 22s.

Tomatos realised 5½d. to 7d. per lb.; Cucumbers, 4s. to 5s. per dozen; Cauliflowers, 2s. to 4s.; Lettuces, 2s.; and French Beans, 9d. to 1s. per lb.

GARDENING APPOINTMENTS.

Mr. J. C. Jolley, for the past two years gardener at The Cedars, Barwell, Leicester, and previously for fourteen years gardener at Blackdow Hill, Leamington, as gardener to E. O. C. Howells Esq., Haynstone Gilbert Hill Road, Coventry. [Thanks for 2s. for R.G.O.F. Box.—Eds.].

Mr. George H. Young, for the past six-and-a-half years at The Elms, Rudgeway, as gardener, to H. G. Bush, Esq., at The Grove, Alveston, near Bristol.

CATALOGUES RECEIVED.

Clibrans, Ltd., Altrincham.—Trees, Shrubs and Climbing Plants; Mushroom culture; Herbaceous and Alpine Plants.

TRADE NOTE.

Patents and Trade Marks.—Any of our readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle.*

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GARDENERS' CHRONICLE LTD.
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THE
Gardeners' Chronicle
No. 2234.—*SATURDAY, OCTOBER* 19, 1929.

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SUPPLEMENT PLATE.

Herbaceous Borders at Manor House.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last fifty years at Greenwich, 49·5°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, October 16, 10 a.m. (Greenwich time). Bar. 30·1. Temp. 58°. Weather, Bright.

Index Londinensis. THE long hoped for and long expected revision of "Pritzel"—*Iconum Botanicarum Index Londinensis*—has appeared, and its appearance will be received with pleasure and gratitude by botanists and horticulturists throughout the whole world. The pleasure is derived from the fact that here—when the work is completed—will be a splendid index to plant illustrations that have appeared in botanical and horticultural publications from the time that Dr. G. A. Pritzel published his *Iconum Botanicarum Index Locupletissimus*, in 1855, down to the end of 1920. More than a score of years have elapsed since Sir David Prain, then Director of the Royal Gardens, Kew, together with the Council of the Royal Horticultural Society, urged the necessity of a revision of Pritzel's work. To their appeal, however, there was no response, but in 1912 a sum of £250 from the profits of the great International Horticultural Exhibition, held at Chelsea that year, was set aside as the nucleus of a fund for carrying out the much needed revision. The Council of the Royal Horticultural Society decided to take action in the matter, but the war period intervened, and it was not until 1917 that Committees were formed to draw up recommendations for the conduct of the work. Eventually, the Royal Horticultural Society very generously agreed to provide the funds, and the Kew authorities to carry out the work. Dr. O. Stapf was appointed Honorary Editor, and the Director of Kew placed a room and the resources of Kew at the disposal of the *Index* staff. By the summer of 1927 the work was so well advanced that it was possible to issue a prospectus and proof page. Negotiations were conducted with the Delegates of the Clarendon Press, at Oxford, for printing the work, and in 1928 the card index of the first volume was placed in the hands of the printers. This volume, from Aa to Campanopsis, contains 84,000 entries, and it is estimated that the complete work of five volumes will contain no fewer than half-a-million entries. The enormous amount of work entailed may be gathered from the statement that the *Index* contains 107,000 references from Pritzel's original work and supplement, and about 380,000 additional references—including many omitted by Pritzel—from the "vast pictorial literature published since 1865." These references are confined to Phanerogams and Ferns and Fern allies, and represent portraits of plants, or of parts of plants, or the habit of plants (as a tree), but not anatomical details. Further, no distinction has been made in their admission between illustrations of species, sub-species, varieties or hybrids, so long as these are accompanied on the plate, or in the text, by a scientific (Latin) name, and, in the case of hybrids, so long as the name conforms to the designation of a species or a variety; but figures with merely generic names are excluded. An effort has been made to unify the spelling of plant names, as these are frequently at variance; authors' names are quoted throughout. In many instances cross references are cited, but, of course, it has not been possible to verify the naming of the plants illustrated. "Names are given as they occur, and the student is left to examine and appraise their correctness." The Preface is printed in English and in Latin; the Introduction in English only; and the Key to the Use of the Index in English, French and German. These are followed by a list of subscribers. Volume I consists of 547 pages, each ten inches by twelve-and-a-half inches, and the type and printing are of that excellence expected of the Clarendon Press, who are the publishers. The price is £5 5s. od. per volume. The work of compiling such an Index is exacting, as checking and cross-checking are necessary to secure accuracy. Moreover, card indexing is not an exhilarating business. It is a pleasure, therefore, to find Dr. Stapf not only expressing his indebtedness to the courtesy and painstaking assistance which he has received on all sides, but also paying a tribute to the "devotion with which the members of the staff, during these many years, have applied themselves to the task, often a monotonous and an irksome one. Without their hearty collaboration the work could not have advanced as it did, nor could it have attained the degree of completeness it may claim." We offer our hearty congratulations to the Editor, to the authorities at Kew, to the Clarendon Press, and last, but by no means least, to the Council of the Royal Horticultural Society, for the public spirit and enterprise shown in making the revised "Pritzel" possible. Our appreciation is sincere as the new work will be a material and frequent help to us. When looking over the first two-hundred-and-fifty pages of the work we found one-hundred-and-forty-four containing references to illustrations that have appeared in *The Gardeners' Chronicle*, but as there are several references on some of these pages we believe the average would work out at nearly one per page. Whether this is so or not, we are justifiably proud of our own record as revealed in the pages of the first volume of *Index Londinensis.*

Our Supplement Plate.—The illustration given as a Supplement Plate accompanying the present issue, shows one of several sets of herbaceous borders in Mr. S. Wallrock's garden, at Manor House, Stanmore, Middlesex, where gardening is carried out with great skill and enterprise. The borders illustrated are on the higher ground, and below them runs a long terrace-walk with arched iron-work that carries numerous Roses and other climbers; by a cunning arrangement of electric lights, this creeper-covered walk and the herbaceous borders may be lighted at night for the entertainment and education of visitors. The borders are well designed, and the soil has been worked and fertilised to a great depth for the purpose of producing first-class results, notwithstanding the close planting that has been practised. They contain a fine selection of hardy border plants, and when we saw them nothing was finer than the two forms of Anthemis tinctoria— Kelwayi and C. E. Buxton—indeed, we have never seen these subjects grown so well or flowering so abundantly as at the Manor House. From the stone-paved path between the borders, a fine view is obtained of the village of Stanmore, with its red-roofed houses nestling amid the green foliage of tall trees.

Proposed International Fixed Calendar.—The question of a revised and fixed calendar has cropped up on many occasions, but our American friends have made some progress in regard to it, inasmuch as the National Committee on Calendar Simplification has reported to the U.S.A. Secretary of State and urged the holding of an International Conference on Calendar Reform. The Committee recommends that an international fixed calendar should contain thirteen equal months of twenty-eight days each, the first day of each month being a Sunday; that a new month be placed between June and July; that the three-hundred-and-sixty-fifth day be an extra holiday, following December 28; that the extra day necessitated by Leap Year be a holiday, to follow June 28; and that all holidays, regardless of where anniversary dates fall in a week, be observed on a Monday.

Deeside Field Club Outing.—With the month of October came the last of the excursions held under the auspices of this Club during 1929. It proved a memorable day, the attendance numbering over two hundred—a wonderful record for an October meeting—and the outstanding feature was the recognition of the excellent services rendered to the Club by the Hon. Secretary, Mr. J. B. Philip. The tour embraced the Blue Hill, Elsick House, and Muchalls Castle, all in Kincardineshire. Miss Mabel Stewart, daughter of the late Sir David Stewart, described to the party the exquisite stretch of country to be seen from the Blue Hill, an eminence on the Stewart estate of Banchory-Devenick. And right well did Miss Stewart fulfil her task, her fine knowledge of a district in which she was born and reared standing her in good stead. Onward again went the long cavalcade of 'buses to Elsick House, the home of Lord Carnegie and his wife, Princess Maud, younger daughter of the Princess Royal. Lord Carnegie awaited the large company on the lawn, and offered them a very warm welcome. Elsick House could not accommodate so large a muster, and the meeting was held under the shadows of the fine trees found here. Mr. Charles Davidson, Convener of the Excursions Committee, congratulated Lord Carnegie and Princess Maud on the birth of a son and heir, who, if spared and well, should one day become the Earl of Southesk. Mr. G. M. Fraser, Public Librarian of the City of Aberdeen, then delivered an enlightening address on the Bannermans of Elsick, the progenitors of the Countess of Southesk, and gave many incidents in their wonderful careers down through the centuries. After an interchange of compliments and thanks to Lord Carnegie for his kindly welcome, the party proceeded to Muchalls Castle, where all arrangements for the visit to this early seventeenth century building was made by the proprietor, Dr. Macintosh. The Marquis of Aberdeen and Temair, accompanied by a large party from the House of Cromar, now arrived and took charge of the proceedings. Mr. Douglas Simpson, a leading authority on the ancient castles of Scotland, delivered a most interesting address on Muchalls Castle. On the motion of Lord Aberdeen, warm thanks were voted for all the facilities afforded the Club members that day. At this stage torrential rain fell, but, fortunately, the out-of-door business was completed. The party adjourned to Cookney Hall, a spacious and comfortable building, where the entertainment and good things provided were such that the weather outside was completely forgotten. The feast over, Lord Aberdeen proceeded to address the company, reminding them that the chief reason for their being there that day was to show their sincere appreciation of Mr. Philip's great services to the Club, both as Editor of the *Deeside Field*—unrivalled among all field club productions—and as the Honorary Secretary of the Club. Seldom had such a galaxy of talent appeared in the pages of a Club magazine, and so, as a slight memento of their affection and esteem for Mr. Philip, he had the pleasure of presenting him with a gold watch and chain, the former inscribed thus:—"Deeside Field Club.—Presented to J. B. Philip, Esq., M.A., with best wishes and thanks for the great services he has rendered the Club since its inception. October, 1929." Mr. Charles Davidson added his tribute to the good qualities of Mr. Philip, remarking that the Deeside Field Club had re-made Mr. Philip. It had brought him out of his "buckie," making the real man appear free from scholastic fetters, genial, witty, humorous. Mr. Philip, who spoke under deep emotion, warmly thanked the members for their gifts that day. He recalled happy memories of their tramps over mountains, woods and streams, and said the gifts would take a worthy place among his most cherished possessions. Following the presentation, Mr. Hugh F. Campbell, LL.B., gave a most interesting address on the origin of the place names visited by the Club that day. His fine record as a Gaelic scholar made Mr. Campbell's remarks fascinating in the extreme, and those who heard him came away wiser and better instructed members. A long and interesting day was made still more enjoyable by the new routes and scenes the party drove through on their return to Aberdeen.

Public Chrysanthemum Exhibitions in London.—The annual Chrysanthemum shows at Southwark Park, Waterlow Park and Finsbury Park, are now open; and those at Battersea Park and Victoria Park will commence on Saturday, October 19.

Leeds Paxton Society.—This long-established Society has arranged an excellent syllabus of lectures and exhibitions for the 1929-30 season. The meetings commenced on October 5 with an open exhibition night, and on October 12, Mr. F. Hawkins Leeds University, lectured on "My Garden in the Tropics." Other lectures to be given are "Formal Design in the Garden," by Mr. J. Addison, of the College of Art, Leeds, on November 9; "Perpetual Carnations," by Mr. F. Stabler, Cookridge Hall Gardens, on March 3, 1930; and "Leaves," by Mr. H. B. Osborne, Burley, on March 22. Evening exhibitions of various kinds will be held on November 23 and 30; December 14 and 21, 1929; January 4 and 18; February 8, 15 and 22; and March 15, 1930. The Chrysanthemum Show takes place on November 16; there will be a discussion on "The Season's Failures," on December 28, the Annual Meeting will be held on January 11 next, and the Annual Dinner on January 25. The Secretary is Mr. F. Goodhind, 194, Harehills Avenue, Leeds.

The National Park Committee.—The Committee recently appointed by the Prime Minister to enquire into the question of establishing a National Park, or National Parks, in Great Britain (see *Gard. Chron.*, October 5, p. 258), held its first meeting on October 10, when the preliminary questions of aims, procedure, and methods were discussed. The Committee hopes to secure the views of Lord Bledisloe on the subject at an early date, and then to consult the various societies interested in the diverse objects embraced by its terms of reference. The taking of evidence from private individuals is necessarily postponed for the present.

Mr. William Smith.—Since 1920, Mr. W. Smith has been gardener at Dunecht House, Dunecht, Aberdeen, first serving the late Lord Cowdray and now Annie Viscountess Cowdray. In recent years, Mr. Smith's name has come prominently before the horticultural world as a first-rate cultivator and successful exhibitor of Sweet Peas, Roses and fruits; indeed, he has beaten growers who seemed to have secured the freehold of certain positions in the prize lists of many northern shows. Mr. W. Smith served an apprenticeship under Mr. J. Sutherland at Craigiehall House, Cramond, Midlothian, and remained there for three years. Subsequently he gained experience as journeyman in the gardens at Blairdrummond, at Alloa House, at Shane's Castle, Co. Antrim, at Hopetoun House, and at Moulton Paddocks. Later he served as foreman at Foggyley, Dundee, and at Dupplin Castle, Perth, becoming gardener to the Rt. Hon. Lord Sempill, at Fintray House, Aberdeenshire, in 1910; this position he held for about ten years, before taking charge of the gardens at Dunecht House. Here he has cleared the garden of old bush Apple and other fruit trees and superintended the erection of a large range of glasshouses, wherein, in addition to Grapes and Peaches, he cultivates no fewer than seven hundred pot fruit trees under orchard-house conditions. He has also modelled a Rose Garden and planted it with four thousand Roses. In 1923, he was given charge of the policies which extend to six hundred acres, including a golf course and eleven miles of carriage drives. As a side line, Mr. Smith has laid out over thirty gardens attached to cottages on the Dunecht estate. He is especially proud of the Royal Horticultural Society's Silver-gilt Medal awarded to his stove and greenhouse plants in 1924; the Veitch Memorial Medal, for fruit, in the same year; the Royal Horticultural Society's Silver Medal for indoor plants in 1925, and the Dunn Memorial Medal for Apples in 1925, at Edinburgh.

MR. WILLIAM SMITH.

Passion Fruit Cultivation in New South Wales.—Writing in the *Agricultural Gazette* of New South Wales, Mr. W. H. Eastwood states "It is being asserted in some quarters that a yield of two hundred bushel cases of Passion Fruit per acre is a fair average yield under North Coast conditions. This estimate is greatly exaggerated and is, no doubt, based on the fact that some five years ago yields of that quantity were obtained in the Tweed River valley. It is most unreasonable, however, to assume that what can be achieved in that particular district is also possible anywhere on the North Coast, from Kempsey to the Tweed Heads. Moreover, in recent years, brown spot and woodiness have substantially reduced yields, and the grower, who, to-day, is harvesting one-hundred-and-forty bushel cases per acre should be satisfied that he is obtaining a fair average crop. Even to obtain that quantity, he will need to have a fair knowledge of proper cultural practices and disease control measures, and, in addition, be favoured with a normal season."

Linnean Society's Meetings, 1929-1930.—The dates on which Fellows of the Linnean Society of London will meet during the coming winter session, are November 7 and 21, and December 5 and 19, 1929; and January 9 and 23; February 6 and 20; March 6 and 20; April 3; and May 1 and 15, 1930.

Scottish Potato Crops.—The Department of Agriculture for Scotland has issued a statement showing the estimated acreage under each variety of Potato in Scotland in 1929, with the corresponding figures for 1928. In the first group, consisting of first-early varieties, the total acreage is given at 15,144, compared with 15,059, of which area Epicure accounts for a half, with 7,939 acres against 8,128. Duke of York, Sharpe's Express and Eclipse came next in the order given, and are the only other varieties running into a four figure acreage. The area under second-early crops increased from 19,413 acres to 20,550, due to the popularity of Great Scot, which was cultivated to the extent of 13,777 acres, compared with 12,287 in 1928. On the other hand, Ally only occupied 962 acres, or a decline of 580 acres. Kerr's Pink, with 47,329 acres to its credit, was the outstanding variety in the maincrop section, which had a total of 91,278 acres, or 1,145 acres less than in 1928. Arran Consul, Majestic, Golden Wonder and Arran Chief were not so largely cultivated, while King Edward showed an increase of 2,000 acres. The total acreage under Potatos was 145,000 acres, as against 144,026 acres last year.

British Gladiolus Society.—The Annual General Meeting of this Society will be held at the R.H.S. new Hall, Greycoat Street, Westminster, London, S.W.1, on Wednesday, October 23, at 3 p.m.

"Hardy and Half-hardy Plants."—The October issue (No. 6, Vol. I) of *Hardy and Half-hardy Plants*, a monthly journal edited and published by Mr. A. W. Darnell, 5, Lansdowne Terrace, Hampton Wick, Middlesex, contains illustrations, accompanied by brief notes, of Alströmeria chilensis (coloured), Trillium nivale, Gentiana bellidifolia, Tsuga Mertensiana, showing a cone-bearing branch; Lobelia ramosa, Calochortus amabilis and C. Kennedyi, the yellow-flowered Forget-me-not from New Zealand, Myosotis concinna, by no means an easy plant to grow successfully in this country; the seasonable Ceratostigma plumbaginoides (syn. Plumbago Larpentae), Corydalis ochroleuca, the Southern Goat Orchis, Orchis longibracteata (syn. Barlia longibracteata and Loroglossum longibracteatum); Soldanella pusilla, Campanula Allionii, Saxifraga lilacina, Disporum Smithii, the Flowering Rush, Butomus umbellatus, Kniphofia rufa, Calceolaria mexicana, Styrax officinale, the beautiful Gentiana Kurroo, and Lomaria alpina, the New Zealand Hard Fern.

The Lord Mayor's Dinner to the Fruiterers' Company.—The Lord Mayor and Lady Mayoress gave a dinner at the Mansion House last week to meet the Master, Wardens and Court of the Fruiterers' Company, and the chairman and members of the General Purposes Committee of the City Corporation. In accordance with ancient custom, the annual presentation of home-grown fruits to the Lord Mayor was made by the Fruiterers' Company, and a splendid display of fruits was arranged in the banqueting hall. The origin of this custom of presenting fruits to the Lord Mayor is traceable to the fact that the Lord Mayor's "meter" was formerly entitled to a sample from every load of fruits which came into the City, but as the practice led to considerable controversy it was arranged that a present of fruits should be made by the Fruiterers' Company to the Lord Mayor annually, and in return the Lord Mayor would entertain the Court of the Company at a banquet. The Lady Mayoress was presented with a case of silver spoons on behalf of the Fruiterers' Company. The gift of fruits was distributed to charities.

Potato Breeding in Scotland.—At the Conference which followed the demonstration of seedling Potatos at Messrs. McGill and Smith's trial grounds at Ayr, on Monday, October 7, the question whether the intensive breeding and testing of new varieties has been of practical value to growers, was discussed at length by the experts who were present. The subject was introduced by Mr. William Robb, of the Scottish Plant Breeding Station, who quoted official statistics which led him to the conclusion that Potato breeding should be encouraged by every means. To discourage it meant abandoning enterprise, which was as much needed to-day as ever it had been in the past. Mr. W. D. Clark, Berwick, advocated a reduction in the number of varieties. Good varieties should be chosen and their quality improved by selection. He held that Epicure's great success in Ayrshire was due to the fact that it was the only variety grown there. Mr. Millar, of the Department of Agriculture, described the work being done at the Plant Registration Station in the testing of seedlings, and said they hoped to be able to indicate to the public within a short time what varieties were really worth taking up. Mr. O'Brien did not deprecate the value of selection, but Potato varieties had a comparatively short lifetime, and something must be done to put new varieties on the market to take the place of those which lost favour. Mr. John Gibb, Bishopton, a member of the Synonym Committee, declared that it would be a suicidal policy to reduce the number of varieties as they must cater for the English market, which was quite different from the home market. There were many interests concerned with Potatos, but the housewife's ideal was the deciding one in the end. While the much lauded Epicure made a few Ayrshire farmers rich, it made the rest of the farmers in Scotland poor! He declared that Epicure was a Potato of bad quality, forced on the public by the Ayrshire farmers. Mr. John Watson, the firm's expert at Alloway, doubted if any of the new varieties except Kerr's Pink and Great Scot had put much money into the farmers' pockets. Speaking on behalf of the firm, the Chairman, Mr. Hugh Smith, observed that they had not seen much direct return from Potato breeding, and Mr. Robb, in replying, said selection could only maintain the quality and productiveness of a variety, and not improve it. The company, by a unanimous verdict, answered the original question in the affirmative.

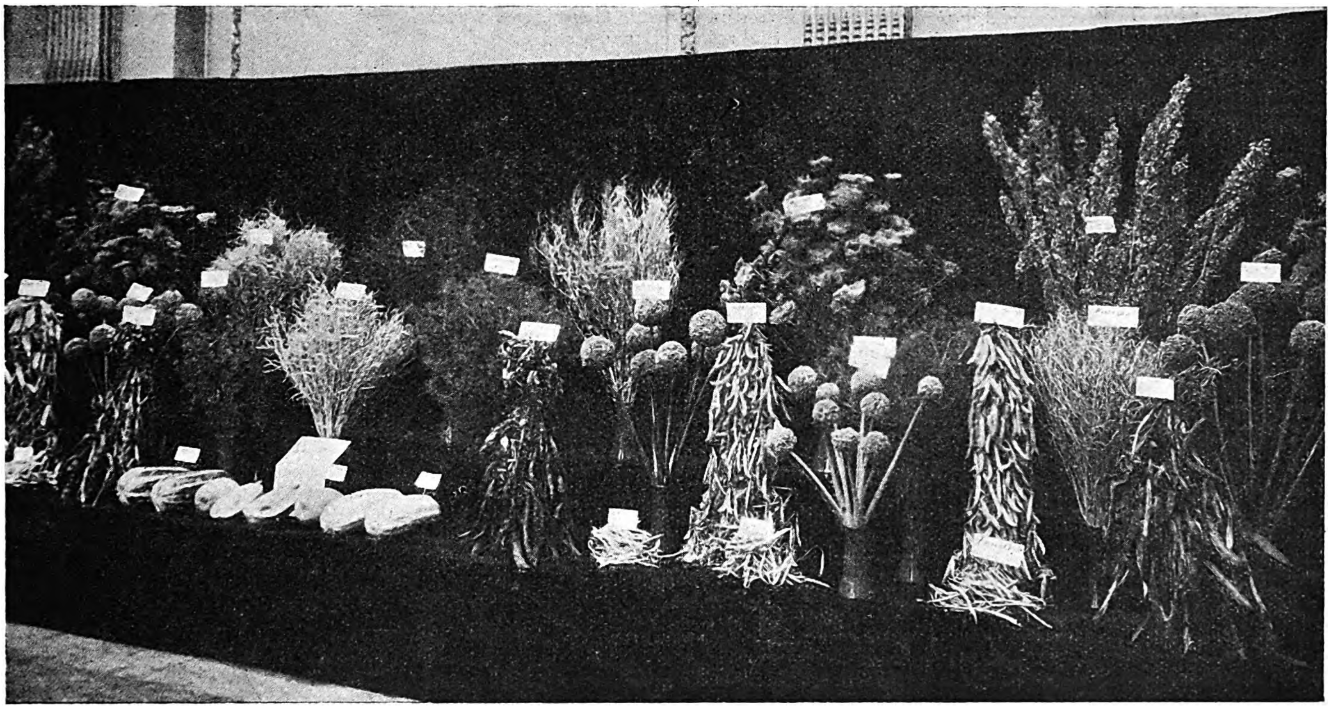

FIG. 143.—EXHIBIT OF VEGETABLE SEEDS BY MESSRS. DOBBIE AND CO., LTD., AT THE R.H.S. FRUIT AND VEGETABLE SHOW. (see p. 314).

Mr. J. F. McLeod.—As intimated in our issue of October 12 (p. 293), Mr. J. F. McLeod, formerly of Dover House Gardens, Roehampton, has returned to Scotland after forty years' residence in England. After retiring from Dover House, where he served the Pierpont Morgan family for very many years, he took up farming in Essex, and more recently he has resided at Ware. For family reasons, Mr. McLeod and his family have now returned to Scotland and taken up residence at Leven House, Milnathost, Kinross, where he has a large garden set in a beautiful and not too thickly wooded district. For about thirty-five years Mr. McLeod has served on the Royal Horticultural Society's Floral Committee, and for a considerable period has been a Vice-Chairman of Section A of that body; he has also been a member of the joint Dahlia Committee, and a prominent member of the governing body of the Royal Gardeners' Orphan Fund. His removal to the north has compelled him reluctantly to resign these positions, and his many friends in the south deeply regret this severance of so many long associations. At the same time, they wish Mr., Mrs. and Miss McLeod good health, new friends, and all possible happiness at Milnathost.

R.H.S. Lindley Library.—It is announced by the Royal Horticultural Society that owing to the reconstruction of the Society's offices and the Lindley Library, the service of the Library will be interrupted. During the actual removal of the Library to its new rooms on the third floor of the present building, which will take place between the months of February and April, 1930, reading accommodation will not be available; it is hoped, however, to maintain the loan system throughout the period of reconstruction, although delays may occur in satisfying Fellows' requirements. Any further notice will be published in the 1930 issue of the *Book of Arrangements*.

Appointments for the Ensuing Week.—Monday, October 21: National Chrysanthemum Society's Executive and Floral Committees meet; Harrogate and District Horticultural Association's meeting. Wednesday, October 23: Royal Horticultural Society's Autumn Show (two days); Newcastle and District Horticultural Society's meeting; Wimbledon Gardeners' Society's meeting. Thursday, October 24: Holland County Potato Show. Friday, October 25: Imperial Fruit Show, Birmingham (nine days). Saturday, October 26: Leeds Paxton Society's Social Evening.

"Gardeners' Chronicle" Seventy-five Years Ago.—*New Plants: Whitlavia grandiflora. Harvey in the London Journal of Botany, Vol. v. t. II. Bot. Mag., t.* 2,813.—A specimen of this fine plant was exhibited last summer at Chiswick by Messrs. Veitch, and it is certainly the gem of the season in the class of hardy annuals. It will no doubt be as hardy as a Phacelia or Eutoca, the latter of which it resembles in its foliage, but then its brilliant blue flowers are as large as those of a Campanula and much finer than anything else of the kind. Mr. W. Lobb found it in California on the mountains of St. Barbardino; but it was originally discovered in that country by the late Dr. Coulter. Dr. Harvey, who first described the plant, naming it after Francis Whitla, Esq., distinguished two supposed species, *grandiflora* and *minor*; but we entertain no doubt that they are, we do not say varieties, but states of the same plant. We had both of them in flower on our table from Messrs. Veitch at the same time. The fact seems to be that the plant when in great health is *grandiflora*, and when weak, from a shady place, is *minor*. Dr. Harvey thought they might differ in the form of the scales which stand at the base of the stamens; but we found those scales varying in form from being acutely bifid to being entire and wedge-shaped with the angles rounded off. *Gard. Chron., October* 21, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Seedling Orchids. — When the interesting business of raising and growing seedling Orchids is practised there are generally some plants which require attention throughout the year. Either fresh batches of seedlings require removal from the seed-beds into other receptacles, or older plants need potting on into larger pots, the chief object being to grow them on to the flowering stage so soon as possible; therefore, they should receive every encouragement for rapid, yet sturdy development. At the present time, seedlings of some of the warm-house kinds are completing the growth of the first leaf, and these require transferring singly to very small pots, or, if room is limited, several may be placed in store pots of two-and-a-half inch size to allow them to become established before the short winter days arrive, when the growth will not be so fast, and less moisture, both in the atmosphere and at the roots, will be needed, although seedling Orchids should never be allowed to remain dry for long periods, nor any attempt made to rest them before the flowering stage is reached.

Cattleya Seedlings.—Where seeds from this large group of Orchids were sown earlier in the year and germinated successfully, many of the larger seedlings should now be ready for transferring singly into small pots or several together into store pots, and kept in a warm and moist position. They will quickly establish themselves at the warmer end of the house. Larger seedlings that have matured their pseudo-bulbs are now producing new roots from the base of the growths, therefore these should be repotted into slightly larger receptacles before they become pot-bound. Use well-drained pots and a compost of A.1. and Osmunda fibre, and Sphagnum-moss in equal parts, the whole chopped up moderately fine, and pressed in firmly around the roots. Give sufficient water to moisten the compost through, and afterwards give just sufficient to keep it moist; avoid saturation as the roots will quickly decay under such conditions. As the shorter days approach, growth becomes very slow, consequently less water will be needed than during summer conditions, but no attempt should be made to rest the plants by withholding water until the flowering stage is reached. When a house is devoted to seedling Orchids of the warm-house kinds, their requirements are more easily maintained by keeping the house a few degrees warmer and the atmosphere more humid than in the house where the larger plants are grown. Should the seedlings have to be grown in the same house as the established plants, a warm corner should be chosen for them, where they can be placed in a position near the roof-glass and given more humid surroundings and shaded from strong rays of sunshine. Occasional fumigation with Xl All should keep thrips and other insect pests in check.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

The Propagation of Bush Fruits.—Cuttings of Gooseberries and Currants may now be inserted out-of-doors, and they should root quite readily if the soil is sufficiently gritty and the situation open to full light. The cuttings should be made from the current year's growth, selecting strong, well-ripened shoots from bushes that are known for their cropping and other good qualities. They should be inserted in trenches four to six inches deep, making the soil, particularly at the base, very firm about them. The cuttings should stand six inches apart and quite double that distance should be allowed between the rows. With Gooseberries and Red and White Currants, the cuttings should be about twelve inches in length after the immature tips have been cut away. The lower ends should be cut square immediately below a joint, and all the buds removed except the top three or four, which should eventually form the main branches and framework of the bush. In the case of Black Currants, however, cuttings six to eight inches in length are all that are necessary, and all the buds on these should be retained, the object being to encourage all the sucker, or basal growths possible, as it is on these strong growths that the finest fruits are obtained. It is advisable, in the case of Gooseberries, to remove all the basal buds, not only to eliminate the risk of sucker growths, which are a nuisance in after years, but because one of the worst diseases to which the Gooseberry is subject, viz., American Gooseberry mildew, invariably attacks these soft basal shoots, so the diseased area is increased, and the chance of the disease being carried over from season to season is all the greater. Gooseberry bushes on nine-inch stems do not make such soft growth, besides, the branches being well clear of the soil, there is less danger of the berries being splashed with grit during rain storms in the fruiting season. Cuttings inserted now, while there is yet a little warmth in the soil, callus over quickly, and roots are formed which are able to develop and sustain top growth next spring, which cannot be expected from cuttings made and inserted late in the winter.

Pruning Bush Fruits.—The pruning of established Gooseberries and Red and White Currants is a simple matter, and yet it should be done in an intelligent manner if the best results are to be obtained. There should be an annual cutting out of old and worn-out branches, and those that tend to hang too low, and a removal of all sucker growths from the centres. The branches that remain should be disposed thinly, so that the hand may pass freely between them, to admit light and air, and to facilitate the gathering of the fruits. All the lateral shoots on these main branches should be spurred back to within an inch or so of their origin, reserving any well-situated shoots on these branches, where there is room, to take the place of some of the older ones. Leading shoots, and others, on main branches may be allowed to extend from six to nine inches, according to the amount of room to spare. In that way the vigour and health of the bushes may be maintained. The pruning of established Black Currants is exactly opposite to that of the foregoing. The finest fruits are borne on the shoots of the previous year. Pruning should be confined to cutting out superfluous and badly placed growths, encouraging so much new growth as possible, capable of bearing the best fruits, but overcrowding should be avoided in every case.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Gloxinias.—Plants that were raised from seeds sown last spring and which have passed out of bloom should be dried off gradually, and so soon as the foliage is ripe they may be laid on their sides in a moderately warm place. Young Gloxinias need very careful ripening, otherwise a large percentage of the small tubers may be lost during the winter. It is not wise to dry them off so severely as the older plants.

Bulbs.—Continue to pot bulbs. Early Tulips may be grown in much smaller receptacles than are required for the Darwin type, which may be grown in seven-inch pots, but both of these groups of Tulips may be grown in boxes and transferred later to large bowls for the decoration of the dwelling-house. Where quantities of cut flowers are in demand, the bulbs are best grown in boxes, but care should be exercised against overcrowding. Darwin Tulips will not submit to the same amount of forcing as other Tulips, but they may be grown successfully under glass by allowing them to develop slowly. In my opinion, the Darwin Tulip is one of the most useful subjects for supplying blooms with long stems in the early spring, especially as varieties in many shades of colour are now available. Narcissi of various types may be treated in the same manner as these Tulips if a quantity of bloom is needed for cutting.

Begonias. — Autumn- and winter-flowering Begonias are now growing freely and the main shoots of varieties of the Optima type, such as Eclipse, Ideal, Exquisite, and many others, may need the support of neat sticks to prevent them bending over through the weight of their flowers. These Begonias will provide a display over a long season, if some of the early-raised plants are allowed to develop all their flowers after this date, and those that were propagated later in the season have their buds removed once more before allowing them to bloom. Encourage the later plants to make healthy growth by giving them weak liquid manure alternately with clear water. Unfortunately, these Begonias dislike fogs, therefore all ventilators should be kept closed and the atmosphere allowed to become as dry as possible on such occasions. Fumigate the late plants after the removal of the flower buds so as to keep aphis and Begonia mite in check.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Peaches.—The season has been most favourable to the ripening of the wood of Peach trees, and no further time should be lost in bringing all root-lifting, root-pruning and renovating operations to a close. Often many of the best roots are destroyed when root-pruning unless great care is exercised. All the strongest roots should be shortened to within a few inches of the surface of the undisturbed ball of soil, which may be three feet or even six feet in diameter, according to the size of the tree. All the more fibrous roots—the real workers—should be kept moist and carefully retained. If the compost is good, this can be returned in thin layers and made very firm, spreading out the retained roots as the work proceeds, after which the whole mass should be watered well. In some instances it may be necessary to repeat this operation the following year, as where large, healthy trees break into strong growth, they advance rapidly to grossness, making growth which seldom produces fruits the following year, no matter how favourable the autumn may be for ripening the wood. Trees which have been checked by root-pruning are most likely to set a good crop of fruits, while the fresh roots will make full use of the mulching and feeding when the crop needs it. Any trees prepared last autumn in the open may now be brought inside to fill vacancies in the borders. A very important preliminary operation is that of giving these trees one or two good waterings before lifting is attempted. If, after being placed in position and tied loosely to allow for settling, a little light shade is given for a few days, and the house is kept rather close and the trees syringed frequently, large trees should re-establish themselves within a month, but on such trees all shoots should be left intact until the young fruits are set and swelling. Pruning of Peach trees may now be carried out, but if former directions have been attended to, only the removal of a shoot here and there will be necessary. All trees should be detached from the trellis and carefully washed with Gishurst compound or strong soapy water, and the woodwork of the house should also be cleansed. If the trees have been free from insect pests, one washing should suffice, but if scale is present two washings, properly performed, should prove more satisfactory than painting with clay, etc. Late trees, now clear of fruits, should be kept clean with the hose. Their roots should be kept thoroughly moist until the leaves fall. The wood of these trees should be thinned carefully to let in plenty of light and air, and any root-pruning should be finished before the end of October.

THE FLOWER GARDEN.

By R. FINDLAY, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Deciduous Shrubs.—Cuttings of many of the hardier and commoner deciduous shrubs may be rooted under similar conditions to that advised for Roses; this is a useful plan to adopt in private gardens, so that young, vigorous plants are always at hand to replenish worn-out subjects. Select growths that are well ripened and of medium length for this purpose, avoiding the strong, succulent shoots, and remove them with a heel of the old wood attached. The securing of a heel is an important factor in the success or failure of rooting cuttings under these conditions.

Pinks.—If pipings of these were inserted they should now be rooted sufficiently to be planted in their permanent quarters. These, like border Carnations, repay generous treatment; therefore prepare the site they are to occupy by trenching two feet deep and working in a supply of good, rotted manure as the work proceeds; the benefit of deep working and generous treatment of the soil is amply demonstrated during dry seasons, such as we have experienced this year.

Climbers and Shrubs on Walls.—With the approach of stormy weather, all climbers and shrubs on walls should be made secure to prevent damage by autumn gales. The method universally adopted is to tie them to wires that have been secured to the walls; when doing so it is usual to use a strong, coarse string, such as tarred twine. This is very often tied much too tightly, leaving the growth little or no room to swell, and eventually cuts into the bark, with the result that the branch is ultimately destroyed, and affords evidence of bad workmanship. Examine all previous ties and renew those that are decayed or likely to cause damage.

Specimen Plants in Tubs.—Plants of a half-hardy nature, in tubs, should now be removed to a place where they may be protected during severe frosts. A cool greenhouse, with a command of artificial heat, is best, but some of the hardiest subjects, such as the well-known Agapanthus, may be stored in a frost-proof shed, provided there is sufficient light. Specimens of deciduous plants, such as Fuchsias and Pomegranates, are happy if stored during winter in a warm shed or cellar, even if nearly all the light is excluded. They require very little water during the resting period, but should not be allowed to become dust dry. Those of an evergreen character require light, and attention to watering once every two or three weeks.

THE KITCHEN GARDEN.

By W. G. STAWARD, Gardener to LADY MARGARET RYDER, Knowle Gardens, Dunster, Somerset.

Leeks.—The hoe should be kept going between any late-planted Leeks, and they may be given a dressing of artificial manure to encourage their growth. It is advisable to draw the soil up around the plants to secure a good length of blanched stem, and also to afford a certain amount of protection from frosts during the winter.

Salads.—Make further sowings of Mustard and Cress, also Onions in boxes, for salad purposes. Lettuces may still be sown in a sheltered, warm border; black-seeded varieties should be chosen for this purpose on account of their hardiness.

Celery.—Late-planted Celery plants should now receive their final earthing up. See that plenty of soil is worked around the stalks and made fairly firm, and dust soot around the plants to keep slugs in check.

Cabbage.—The final planting of spring Cabbages should be made now, so as to allow the plants to secure a good root-hold before the cold weather sets in. If plenty of frames are available, a few of them may be filled with early Cabbages, which should be ready for cutting a few weeks in advance of the out-door plants.

Globe Artichokes.—As the leaves of these are now dying off, the plants should be cut back and the bed lightly forked, after which it should be covered with a light mulch of farmyard manure to protect the crowns during the winter; ashes or rough leaves are also suitable for this purpose.

General Work.—As crops are cleared, the vacant ground should be dug and the surface left so rough as possible to allow of the beneficial effects of weathering. Heavy clay soil should have plenty of rough ashes and a quantity of lime-rubble worked into it, and should then be ridged. Bastard trenching is the most suitable method of dealing with the ground, as when done properly no soil is left unturned, and it allows vegetable refuse and other material to be worked into the ground to a good depth.

FOR NORTHERN GARDENERS.

By JOHN HILL, Gardener to ANDREW ARTHUR, Esq., Rosemount, Monkton, Ayrshire.

Spring Bedding.—Most of the summer bedding plants have passed their best, even if frost has not altogether finished them, and steps should be taken to get Wallflowers and other spring flowers planted at once, so that they may have a chance of becoming well established before growth ceases. Endeavour should be made to change the scheme of planting from one year to another, as great variety is possible in spring-bedding schemes. Wallflowers may be planted in separate beds of different colours, or they may be associated with Tulips. Myosotis Royal Blue harmonises with various Tulips, and Arabis albida makes a good groundwork for Tulips and other spring-flowering subjects. The Siberian Wallflower, Cheiranthus Allionii, is also very effective, either alone or in combination with bulbs. In preparing the ground it should not be necessary to add fresh manure now if a supply was given in spring. Make the soil reasonably fine by working it well, and get the plants into position, introducing the bulbs afterwards. Where the soil is heavy, dry days should be chosen for the work, and if bulbs of any kind are planted, a little rough sand should be placed beneath them so as to prevent excessive moisture collecting around them during the winter and thus cause decay.

Violets.—Remove any decayed leaves which appear, and keep the surface of the beds constantly stirred. Give water, if necessary, and keep the lights off on all favourable occasions, as Violets in frames should be grown so hardy as possible.

The Carrot Bed.—To grow good Carrots it is necessary that the soil be deeply worked, and the earlier in the autumn this is done, the better. If there is a good depth of soil, trench the ground; if not, double-dig it, for no matter how poor the subsoil may be, it is better broken up, and any decaying vegetable matter available added to it. It is not wise to incorporate fresh manure in the soil for this crop, but an annual coating of leaves or leaf-mould should prove beneficial. It is a good plan in many cases to grow Carrots on the same ground for several years. Peat, in quantity, may also be added to the soil with advantage, and if Carrot fly gave trouble during the past season, give a dressing of a good soil fumigant. Soot may be applied now, but it is better given at seed-sowing time.

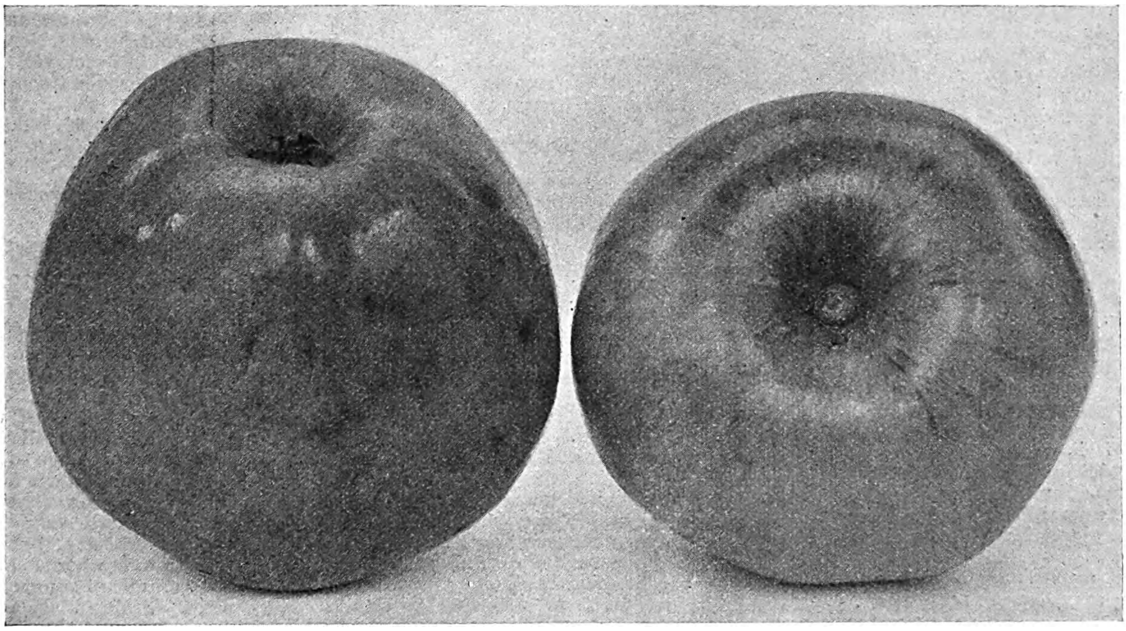

FIG. 144.—APPLE HOWGATE WONDER.
R.H.S. Award of Merit, October 8. Fruits large, yellowish-green, flushed with red.
Shown by Mr. G. Wrathen, Bembridge. (see p. 293).

TREES AND SHRUBS.

KOLKWITZIA AMABILIS.

ALTHOUGH this shrub has thriven with remarkable vigour and appears in other respects to be thoroughly satisfied with the good loamy soil and open position in which it has been established for several years, it has not yet produced a single blossom. It is a species of so much distinction and charm, according to Mr. W. J. Bean and other authorities, that its refusal to blossom is the more disappointing. Yet one hesitates to do away with such a shrub until every hope of discovering its unsatisfied demands has been abandoned.

K. amabilis was found by Mr. E. H. Wilson in Hupeh at an elevation of 9,000 to 10,000 feet, and it is recorded that it first flowered in this country at Coombe Wood, in 1910. If I am correct in stating that it was discovered growing among rocks, it may be that poverty of soil, with some root restriction, may induce it to bloom. Anyhow, it would be interesting as well as helpful to know whether any reader has tried such treatment and, if so, with what results. That the shrub is absolutely hardy, there seems no doubt. Its foliage and the natural elegance of the slender growths are in every way delightful. The one thing wanting is the bell-shaped, Abelia-like flowers, and I should be more reluctant to write of my own failure to induce the shrub to yield these had I not been aware that some gardeners of greater experience and more extensive scope are equally unsuccessful. *J.*

SOPHORA JAPONICA.

SEVERAL representatives of the Japanese Pagoda Tree, Sophora japonica, flowered freely on the lawns at Kew. With their dark green, pinnate leaves, and quantities of creamy-white flowers, they form most attractive and interesting large specimen trees.

The specific name suggests that the tree is a native of Japan. The generally accepted conclusion now is that it is one of the numerous trees and shrubs which are natives of China, but have been cultivated in Japan for hundreds of years, and were introduced to British gardens from Japan. Sophora japonica is also a native tree of Korea.

The date of its first introduction to British gardens is given as 1747. The oldest tree of Sophora japonica at Kew was planted in 1762, being one of the trees and shrubs removed from the Duke of Argyll's garden at Whitton, which formed the nucleus of the first arboretum established at Kew by Princess Frederick of Wales. The old tree is not so vigorous as formerly, the larger limbs being held together by steel bars, while several large holes are filled with cement. It is, however, an object of considerable interest to visitors, and an example of the tree-doctor's skill in prolonging the life of old veterans.

Cultivated as a specimen tree, Sophora japonica is of rounded, spreading habit with branches low down on the trunk. The height varies from about fifty to seventy or eighty feet, with a spread of branches almost or quite as wide. There is a tall specimen with a large, clean trunk at the south end of the Holly Walk, of upright habit, obviously the result of close planting.

Sophora japonica is one of the latest trees to develop its foliage in spring, and is also one of the last trees to shed its leaves late in the autumn. The attractive, deep green, pinnate leaves consist of from nine to fifteen leaflets. The small, creamy-white flowers are Pea-shaped, and produced freely in terminal panicles. *A. Osborn, Kew.*

LEUCOTHOE DAVISIAE.

THIS attractive species is one of the most delightful of all those once called Andromedas, and as a flowering shrub it is well worthy of being placed in the very front rank among its own and allied genera. L. Davisiae is an evergreen of about two feet in height. It spreads slowly by means of underground runners and, under suitable conditions, eventually makes a compact thicket of growths several feet across. The habit is upright and the rigid branches are amply furnished with ovate-oblong leaves, leathery in texture and of a rich, glossy green. These leaves may be so much as two inches long and half as wide, and they are slightly toothed at the margin. About midsummer, flowers appear in clusters of erect racemes which rise from the terminal leaf-axils and ends of the branches. Each of these racemes is some three or more inches long and the snow-white, pendulous, pitcher-shaped corollas are fully a quarter-of-an-inch in length. Not only does the pure whiteness of the blossoms look remarkably well against the rich green leafage, but the bunched racemes stand erect and quite clear of the foliage.

L. Davisiae, a native of the Californian Sierra Nevadas, was first discovered and introduced (1853) by William Lobb. Although generally classed as a peat shrub, it will prosper in any free, acid loam, which does not get too dry in summer. With me it grows and flowers in what one might call a good Heath soil, with light shade from deciduous trees. Under such conditions I have seen it doing well at Wisley. In spite of its Californian origin, L. Davisiae appears to be quite hardy, and the facts that it flowers late and does not expose its budded racemes to any risk of frost as do some of its allies, are much in its favour.

PHYLLODOCE COERULEA.

THOSE who grow Ericaceous shrubs should find this an interesting plant and one that is, in many places, difficult enough to impart a certain zest to its culture.

P. coerulea is a rare native, found only in one part of Scotland, but it has a wide range over the northern hemisphere, including both the Old and the New Worlds. Being a little shrub not only of the north, but of lofty altitudes, it does not take kindly to southern conditions, but once it is spared the trials of a parching sun and insufficient moisture it can be grown and flowered with much satisfaction. It is naturally a peat lover, but I have grown it for years in a light, lime-free loam which has a naturally cool subsoil, the root-run being rendered more retentive by the use of really old leaf-mould. Peat-moss that has been well weathered is also a useful absorbent both for mixing with the soil and for top-dressing. Full exposure to sun is desirable where uniform moisture is always sufficient in summer, otherwise the plant may be given the northerly side of a sheltering rock.

P. coerulea makes a twiggy, compact little shrub some six inches high, the branches being furnished with blunt, linear, evergreen leaves of a dark, glossy green. With me the plant almost invariably flowers twice a year, in June, or earlier, and again in September. The blossoms, which are borne either singly or in small umbels, are carried on erect, one-inch stalks, the drooping, pitcher-shaped corollas being fully one-third-of-an-inch long. The specific name implies that these blossoms are blue, but I have never yet seen one which is other than mauve, or bluish-purple. However, one can at least give the species credit for possessing the bluest flowers of its genus, most of the others being of some shade of rose or pink.

RHODODENDRON VASEYI.

IT is always pleasing to see an old plant brought into prominence and easily holding its own among novelties of the highest merit. That is how many must have felt when they saw R. Vaseyi occupying a position of prominence in that magnificent collection which the Bodnant Gardens staged at the last Chelsea Show. I had grown R. Vaseyi for a number of years and, therefore, felt guiltless of the charge that "so beautiful a shrub should so long have escaped notice" (W. J. Bean: *Trees and Shrubs Hardy in the British Isles*), but when I came to compare my own with the Bodnant specimens they were as water to wine. Their almost white blossoms, clustering the leafless branches of early May, were certainly not to be regarded as unworthy, even where space is a consideration, but the loveliness of that rose-pink of the others was nearly enough to induce me to believe that I had never grown this delightful species at all. These shrubs, with the flowers nearly pure white, were undoubtedly seed-raised, and the significance of the point will not pass unobserved by those who are planting the species this season.

R. Vaseyi is a deciduous North American species. Discovered in 1878 in North Carolina by Mr. G. R. Vasey, it was introduced some ten years later, but for some unknown reason it has never been accorded the notice it deserves. It is hardy, and its slender, open, rather upright habit and medium stature render it a very suitable subject for gardens of moderate area, and I know of no better shrub for grouping among dwarf Heaths or other Ericaceous plants either in the open or in thin woodland. It flowers regularly and abundantly; the flowers withstand our spring weather singularly well, and the linear-oval leaves, averaging about three inches in length, assume brilliant autumnal tints. The blossoms, one-and-a-half inch across, are borne in clusters at the tips of the twigs, and so firm are they in texture that the leafless shrub at a little distance might suggest a miniature Magnolia.

R. Vaseyi is the most distinct and, perhaps, the most beautiful of all North American deciduous species, and not the least of its many valuable attributes is its ease of culture in any average lime-free loam. I find it as good a drought resister as the old R. flavum, even on my hillside banks. *North Wales.*

WOODLAND GARDEN.

KITAIBELIA VITIFOLIA.

ALTHOUGH this herbaceous perennial may be unworthy of a place in a choice border, it is a subject that may be used with good effect among shrubs, in open woodland or some neglected corner. One of the Malvaceae, K. vitifolia can claim no small share of that decorative quality which belongs to so many of its kind. A stately, upright grower four or five feet high, its very large, vine-shaped leaves, in a lively green are distinctly attractive. The flowers, which are cup-shaped and about the size of those of a Hollyhock, are borne singly at the leaf-axil during the middle of summer, the corollas being pure white or blush. If these will be a disappointment to gardeners who like their colours strong, there is to some of us a decided attractiveness in such delicately-textured blossoms hovering in the shade of the widely-disposed, handsome leaves.

K. vitifolia is a native of Hungary, its generic name commemorating Paul Kitaibel, the Austrian botanist. The plant is quite hardy and does well in any average loam, and few subjects are more readily satisfied, either in sun or shade. It was this species, it will be remembered, that was used with Abelia Thompsoni; in the production of that curious graft-hybrid, K. Lindemuthii, an oddity which I could never succeed in growing with any satisfaction. *A. T. J.*

ALPINE GARDEN.

SILENE SCHAFTA.

ALTHOUGH well-known to most lovers of alpine flowers, there are yet many whose gardens would be enriched by the presence of the bright little plant named Silene Schafta, which has been in our gardens since 1844, when it was introduced from the Caucasus. It has fully justified its introduction, since it has become so accustomed to our climate that it has laughed to scorn the trials and storms of our winters, and has given with no sparing hand its gifts of bright flowers in the late months of the year. By some slip—and there are few works of reference without some such failing—the flowering period of S. Schafta is given by one authority as "April," which, as everyone who knows the plant will agree, is an error, and anticipates the flowering by three or four months. With the writer, S. Schafta generally begins to bloom in August, and its bright blossoms are not only welcome at that time, but are doubly so, seeing that they are continued for many weeks and even the first frosts fail to destroy them, and very fascinating they are with their bright, rose-pink or magenta blooms silvered over by the hoar frost.

This little Silene forms a mass of green leaves, which are very pleasing when trailing over the rocks, down a retaining wall, or as an edging. The flowers are of good size and are of that hue which some call magenta, but others claim to be rose-pink. Even if we admit that it may be magenta, there is plenty of greenery about the plant to neutralise any hardness of colour. Its behaviour in the garden is beyond reproach. Farrer tells us that "So lavishly does it grow, indeed, and so riotously bloom, that it loses the refined air of endurance which ought to be associated with an alpine perennial, and takes on the look of some bedding annual, ebullient in blossom because ephemeral." But, as he states, also, that "S. Schafta is perhaps one of the rock-garden's greatest assets in late summer and autumn" we have to "forgive (as we can easily do) any shortcomings of the summit of perfection;" and rejoice in its health and happiness and in the benison of bright bloom it bestows upon our gardens for so long. No one need be without it, as it comes freely and easily from seeds, and may also be propagated by cuttings. It appears to have no foibles respecting soil or exposure, but flourishes in loam or in orthodox rock garden soil, while it blooms in sun or shade, provided that the latter is not too dense.

ODONTOSPERMUM MARITIMUM.

It is a long time since I came across the plant known as Odontospermum maritimum, and also as Asteriscus maritimus, the former being now the recognised name. The other day, however, a flower of this plant came to me from a local rock garden, and it reminded me of this Odontospermum having been shown in Edinburgh many years ago by a Scottish firm that intended specialising in alpine flowers, which they had not done previously. With a plant of its appearance, some of us who had been growing alpines for years were doubtful about its hardiness, and asked the firm's representative about this, but could obtain no assurance of its ability to withstand the winter. On further inquiries made in other quarters I came to the conclusion that it was not worth while to procure O. maritimum.

Until the other day I had not seen it growing in a Scottish garden, and I fear that in the place whence the last specimen came it will succumb. With regard to the appearance of the Odontospermum, one may state that it is a Composite with wonderfully large, golden-yellow flowers, and silky-woolly leaves. It is a plant which, if hardy, would attain a certain amount of favour. It was figured in *The Gardeners' Chronicle* in 1884 (Vol. XXII, p. 392, Fig. 70). Farrer is not very complimentary to the genus, about which he wrote :—

> "They are hardly hardy with us, nor very well worth the trouble of trying, were it not that failure would bring so little disappointment."

One can only write of this plant from the Mediterranean regions with very faint praise, but those in very mild localities may not think it unworthy of a trial. *S. Arnott.*

SEMPERVIVELLA ALBA.

This is a really charming plant when grown, as I recently saw it, on rock work in a cold house; the plant is a velvety, soft green in colour, with the general appearance of a Houseleek; the flowers, produced on numerous sprays, are round and comparatively large, not quite pure white in colour and best described, perhaps, as ivory.

The plant flourishes in a light, sunny position, and in a well-drained, light and gritty soil; it is, I think, of doubtful hardiness, but my experience is entirely of plants grown in the alpine house.

S. alba is as yet rather rare and should, when better-known, prove very popular; the large flowers are decidedly pretty, and the whole plant is of interesting appearance. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

SISYRINCHIUM STRIATUM.

Introduced from Mexico so long ago as 1788, Sisyrinchium striatum has never become a popular plant, although it is listed by a few dealers in hardy flowers, and is to be seen in some gardens. I have observed it grown on rock gardens, but it appears to me that its proper place is in the border, where, not far from the front, the sword-like leaves, from one foot to two feet high, and yellow flowers, about the size of a shilling, are interesting and give variety to the border, even although they can hardly be described as brilliant. This Sisyrinchium is one of a large family of plants, some of which are of exquisite beauty, and a goodly number of which are only half-hardy in our climate.

I have found S. striatum to be one of the plants which occupy the borderland between hardy and half-hardiness. Ordinarily, it withstands the winter if in a dry, sunny border, but in some seasons may depart this life, whether owing to winter wet or frost, I cannot state. But it frequently reproduces itself from self-sown seeds, and rarely disappears.

It is increased by seeds and division of large plants. Not a first-class, but an interesting, border flower, S. striatum is favoured by some. There is in existence a variegated variety, S. s. var. variegatum, with the leaves striped with gold. *A. D.*

CLEMATIS INTEGRIFOLIA.

It was with pleasure that I read the article on this old plant by *G. S. T.*, on page 222. To the two varieties mentioned by your contributor, I may add a white one, C. integrifolia var. alba, and one named Durandii, which I have no recollection of having seen, but which is offered by an English nursery. There was also a double variety, which I saw offered many years ago, but would appear to be lost to cultivation as I have heard nothing of it since.

It is a pity that the increase of C. integrifolia is difficult, but on one occasion I divided a large plant and the divisions grew quite well afterwards. As your correspondent states, C. integrifolia resents disturbance. *S. Arnott.*

BULB GARDEN.

CRINUMS AND AGAPANTHUSES.

I enclose a photograph (Fig. 145) of Crinums and Agapanthuses growing in one of the public gardens here. Both kinds were planted about three years ago, in not too favourable a situation, as the site is fairly exposed and faces east. They had no care in the way of protection during the winter months, and it is, therefore, all the more surprising they have withstood the winter so well, as the situation they occupy is rather wet, owing to water draining from the slope behind. This latter may, however, account for them growing so freely during the past dry summer, as the colony has received no water.

The Crinums are C. Powellii and C. P. var. alba; the Agapanthus is the old A. umbellatus. All were rather past their best when the photograph was taken (September 20), but the illustration may tend to show that the climate here is not so severe as supposed. *J. Clark, Corporation Nursery, Scarborough.*

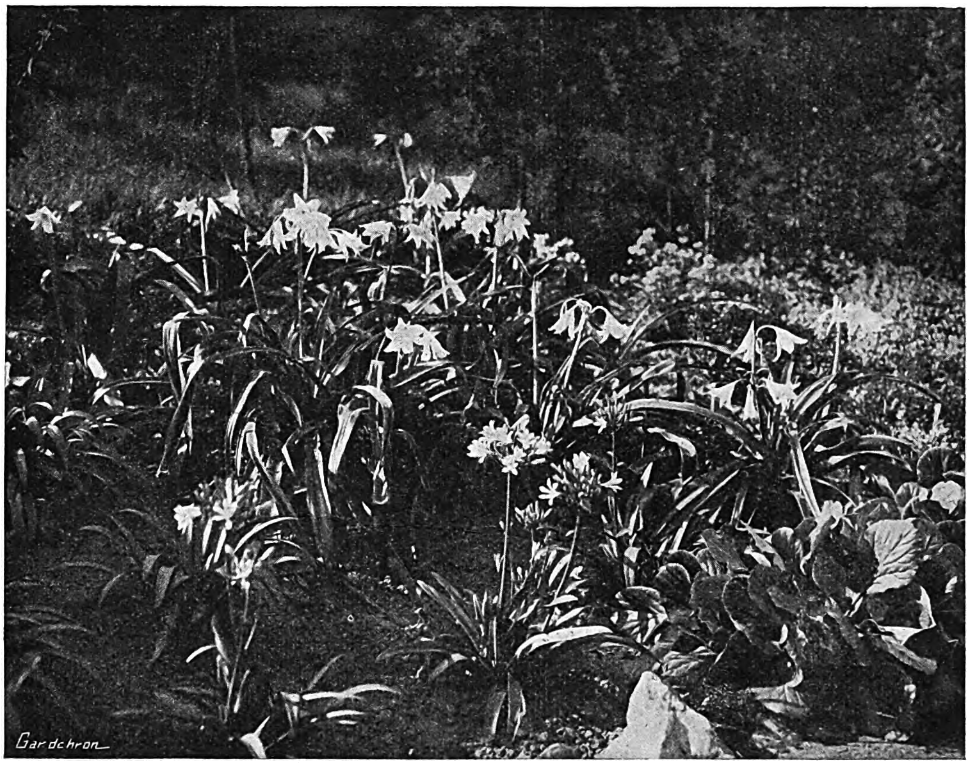

FIG. 145.—CRINUMS AND AGAPANTHUSES AT SCARBOROUGH.

BOG AND WATER GARDEN.

SENECIO CLIVORUM VAR. ORANGE QUEEN.

Senecio Clivorum has long been recognised as a desirable plant for bold groups by the water side and elsewhere. The variety Orange Queen is, however, a great improvement on the old form. I am convinced that anyone who grows this variety will at once discard the type. Big groups of Orange Queen planted by the stream in one of the public gardens here, have been the admiration of numerous visitors this season. The seeds were procured from Messrs. Barr and Sons, some three or four years ago, and I still find seeds listed in no other catalogue but theirs, although several other nurserymen are now listing plants. The seeds germinated freely, the resulting plants making strong flowering specimens in two years; every one is true. I believe it is, if anything, stronger growing than the old form, and the season of flowering is longer, as even now (October 5) the plants make a good display of colour.

The chief features of this new variety are its larger flowers and much better colour—a rich, glowing orange, much deeper and brighter than in the old form, which by comparison is decidedly dull and weedy. *J. Clark, Scarborough.*

INDOOR PLANTS.

STREPTOCARPUS WENDLANDII.

This old species is not to be compared, for floral beauty, with the exquisite hybrids now in commerce, yet by virtue of its singular habit of growth it is invariably an object of interest and distinction; one large, reflexed leaf is produced and this will sometimes attain a width of two feet, with proportionate length. From the midrib of this leaf scapes are produced to a height of twelve to eighteen inches, bearing very charming, violet-blue and white flowers.

This interesting species is easily raised from seeds, or the large leaf may be used for propagation. S. Wendlandii has been used as a breeder, but not to the same extent as S. Dunnii, another singular species introduced from the Transvaal, in 1886; this, too, has only one large leaf, sometimes a yard long and half-a-yard wide, from the base of which the flowers are produced in crowded and erect panicles, the colour being an attractive shade of brick-red.

With S. Rexii, S. parviflorus, S. polyanthus and S. Fanninii, these Streptocarpi have helped to produce the lovely varieties known to-day. Both S. Wendlandii and S. Dunnii grow freely in a good compost of loam, leaf-soil and sand, with the addition of a little well-rotted manure. The best results are obtainable in an intermediate temperature, but quite good plants may be grown in an ordinary cool greenhouse. *R. A.*

TETRANEMA MEXICANA.

This pretty little perennial herb is a member of the Natural Order Scrophulariaceae. It represents a monotypic genus hailing from Mexico, and was introduced to this country during the year 1843. The generic name Tetranema refers to the stamens or filaments, which are four in number, being characteristic of the plant. The flowers are borne in great profusion on axillary, scape-like peduncles. They are a delightful shade of purplish-violet, somewhat variegated by a paler shade of the same colour. The rich, dark green leaves are obovate or oblong and entire, and both the upper and lower surfaces are glabrous.

Culture in a warm greenhouse is most suitable to this Mexican Foxglove.

Propagation may be effected by means of division of the old plants, and by seeds, which set very freely.

Panning should be done in spring, using pans twelve or fifteen inches wide, and putting four or five good young plants in each. A compost of good sandy loam and leaf-mould should be found to suit admirably. An abundance of bloom is given by the plant during the greater part of the summer months.

GLOXINIA MACULATA.

This elegant stove subject was introduced to cultivation in this country so long ago as 1739, and is a native of South America.

The downy, purplish-blue flowers are over an inch in diameter, and are borne in a large spike. They expand in succession from the base, and remain open for three or four days. A very much deeper blotch of purple in the centre lends beauty and contrast to the other floral parts. The cordate leaves are about four inches in length by three inches wide; the upper surface is shiny and has a few stiff hairs here and there; rich red suffuses the reverse of the leaf and, indeed, the whole plant generally.

The roots should be started into growth during February, in a temperature of 65°, a suitable compost being one of equal parts of good Oak leaves and rough peat, with just a dash of silver sand and charcoal to ensure sweetness. They may be put straight into flowering pots, either six inches or seven inches in size, or placed in small pots first and then potted on when well rooted.

Liquid-manure applied frequently when the blooms begin to appear is very helpful.

The maximum height of this subject is about two feet, but as the stems and leaves are extremely fleshy, great care should be taken in attending to them, otherwise they will be very liable to break off.

After flowering, when growth begins to decline, the supply of water should be reduced gradually, and when the growths have died down, the roots should be stored in a suitable dry place. but never allowed to suffer from cold. *F. H. Wright, Cambridge Botanic Garden.*

THE GENUS PRIMULA.

(*Continued from p.* 290.)

SCHLAGINTWEITIANA (Pax). Schlagintweit's P.
(Denticulata).

A dwarf, non-mealy, perennial species with a tuft of oblong-spathulate, blunt leaves three-quarters-of-an-inch to one inch long and about half-an-inch wide, gradually or abruptly contracted into a winged stalk, equalling or shorter than the blade; margins sharply and irregularly toothed; both surfaces minutely downy. Flower stem slender, two-and-a-half to four-and-a-half inches tall, bearing a dense, many-flowered head of lilac blossoms. Corolla about half-an-inch across, with broadly heart-shaped, notched lobes; tube more than twice the length of the calyx.

Grows in damp, rocky places between Rilkot and Milum, in the western Himalayas, at about 11,000 feet above sea-level.

Culture: As for P. denticulata, is suggested.

SCIOPHILA (Balf. f.). Nivai P.
(Bella).

A beautiful, dwarf, densely tufted, perennial sub-species of P. bella (Fr.) with a somewhat woody rootstock clothed with the dried remains of previous seasons' foliage. The rosettes of bright green leaves have oblong or nearly circular blades about two and-a-half inches across, on narrowly winged stalks from two to four inches long; under surface coated with yellow meal. Flower stem extremely short, under one-eighth-of-an-inch long, bearing one pale, or deep purple blossom, subtended by two bracts. Corolla about one inch across, more or less flat, cut into five broadly heart-shaped, bifid, deeply divided lobes; tube pale purple, with deeply coloured veins, cylindrical below, dilated upwards, with a dense tuft of snowy-white hairs in the throat. Flowers in July.

Grows in damp, very shady spots in moss or in clefts of rock on the ridge of Naung Chaung, Nivai divide, in Upper Burma, at about 13,000 feet above sea-level.

Culture: Peat and moss mixed with limestone chips in a damp, shady spot, should suit this plant.

SCULLYI (Craib). Scully's P.
(Petiolaris-Sonchifolia).

A dwarf, non-mealy, large-flowered perennial species with a stout rootstock which bears a rosette of narrowly oval, oblong, or oblong-ovate, papery leaves about two inches long and one-and-a-quarter inch wide, nearly stalkless, or tapering to a distinct, winged stalk an inch or more in length; margins furnished with sharp, irregular teeth; both surfaces more or less smooth. Flower stem obsolete; flowers numerous, borne on minutely downy stalks one to one-and-a-half inch long, after the manner of the Primrose. Corolla about three-quarters-of-an-inch across, with egg-shaped, elliptic or oval-oblong, pointed or blunt, irregularly sinuate-lobulate segments; tube about five-eighths-of-an-inch long.

Grows in damp situations near Longlu and Singaleelah, at 12,000 to 13,000 feet above sea-level, in the west Sikkim Himalayas.

Var. Searightii (Craib) has long, narrow lobes to its calyces which are externally nearly smooth.

Culture: As for P. petiolaris.

SECLUSA (Balf. f.). Burmese Downy P.
(Cortusoides).

A robust, coarse-leaved, deciduous, perennial sub-species of P. mollis (Nutt.), with a tuft of membranous leaves from eight to ten inches long, with rounded, heart-shaped blades about six inches across, on woolly stalks; margins furnished with sinuate lobes, edged with numerous horny-tipped teeth, fringed with fine hairs; both surfaces moderately clothed with short, white hairs. Flower stem robust, downy, about fifteen inches tall, bearing two to three superposed umbels composed of six to eight deep crimson blossoms with somewhat paler lobes. Corolla slightly oblique, membranous, about half-an-inch across; segments egg-shaped, fringed, tips cleft; tube cylindrical, equalling the calyx in length, with a ring in the mouth. Flowers in June. In cultivation in 1922.

Grows in damp, usually deeply shaded situations, in evergreen forests and shady thickets, in southern Yunnan and Upper Burma, at about 8,000 feet above sea-level.

Culture: Plant it in a compost of good, rich, heavy loam and leaf-soil, and treat as a cool greenhouse plant. *A. W. Darnell.*

(*To be continued.*)

NOTES FROM A CAMBRIDGESHIRE GARDEN.

The following notes on how some young trees and shrubs in a Cambridgeshire garden have weathered the frost and drought of this abnormal year may be of interest, and, perhaps, some encouragement, to readers of this journal.

The garden in question lies almost midway between Cambridge and Huntingdon, and just inside the Cambridgeshire boundary. The subsoil is gault, with patches of gravel here and there, and in some places a heavy clay comes right to the surface. It is barely fifty feet above sea-level, and is protected by a screen of trees from the north-east and east winds which arrive from the North Sea, without other let or hindrance, over sixty miles of fenland.

The frost of the early part of the year was the most severe since 1895, 20° having been registered on February 13, and 18° on the 12th and 14th, while so late as March 17, 10° were recorded. The rainfall to date—September 30—has been 8·55 inches. The yearly average, taken over the last thirty years, is 24·15 inches.

The majority of the plants referred to hereafter were planted last fall, and many of them had barely been put into position when bitterly cold winds fell upon them in mid-December, accompanied by a frost which did not lift to any appreciable extent until the general thaw in late March. It is, therefore, all the more remarkable to note how very little they seem to have suffered. Furthermore, as no water supply is laid on to the garden, it was not possible to water any of the plants, except some of the Rhododendrons, until early September, when, owing to some particular shrubs looking a little dejected, they were watered at great labour from a pond at some distance. The Rhododendrons in permanent positions had been treated all the summer with a liberal mulch of Oak leaves, and those in the nursery had been watered by means of large flower-pots sunk in the ground at intervals and filled up with water every four or five days. A few other plants in the nursery were catered for in the same way, and non-Ericaceous shrubs in permanent places were treated with a mulch of lawn-clippings (reluctantly spared from the Adco heap!), and with Horse Chestnut, Lime and Elm leaves.

Cotoneasters (bullata, Henryana, bacillaris, salicifolia), Stranvaesia Davidiana and its variety undulata, and Photinia villosa, although planted in full sun, look as fresh and green as if they had had their normal supply of water; as also do three species of Arbutus, viz., Andrachne, hybrida, and Menziesii. In fact, the latter has made a lot of new growth, and looks perfectly happy in the middle of what had, by mid-September, become such an arid plain that one expected it to sprout Cacti!

Davidia Vilmoriniana had begun to droop by the end of August, and to lose a number of leaves from one branch, but a heavy watering in early September restored it in twenty-four hours and carried it through the next three weeks. Acer Hersii did not appear to have felt the drought, but was watered as a precaution.

A number of plants in the nursery, including Salix magnifica and S. Bockii, Pterocarya stenoptera and P. rhoifolia, Aesculus turbinata and A. indica, Nothofagus procera and Juglans Sieboldiana, showed no signs of suffering from drought, but were watered as a precaution. It might here be mentioned that Salix magnifica, about three feet high, did not appear to have been harmed at all by the winter or spring frosts. It, and the plants of Juglans Sieboldiana (which last year were badly cut), were protected through the winter by a lath screen laid on posts a foot or so, horizontally, above them. These lath screens have also protected from the sun, with marked success, beds of small seedlings of Cercidiphyllum japonicum, Abies sachalinensis, and various Cotoneasters and Barberries, which otherwise would have been exposed to full sun. The screens used are made of one-inch laths spaced half-an-inch apart.

Plants in the nursery which have not been watered, and which in spite of a big surfeit of sun and little shade, show no signs of distress, include Zelkova acuminata, Idesia polycarpa, Rhus semi-alata, Celastrus articulatus and Pyrus transitoria (Malus toringoides).

A number of Poplars (Populus koreana, P. Rasumowskyana, P. yunnanensis, P. trichocarpa, P. szechuanica, P. lasiocarpa, P. marilandica and P. Eugenei), would have looked the fitter for water, but, unfortunately, it was not possible to assuage their thirst. In protest, they began to shed their leaves very early, and now look more like mid-winter than early autumn. A large plant of Populus Wilsonii has, I am afraid, been killed.

Two trees of Betula utilis have not come through this trying time, but as they were seven feet high when planted in March, their decease is not altogether unexpected; although Betula Ermanii has not been affected under almost similar conditions.

Just before Christmas this garden was enriched by a very welcome gift, from a famous Cornish garden, of three plants of Rhododendron sinogrande, one plant of R. arboreum (Sir Charles Lemon), a fine plant of Viburnum fragrans, and the Populus Wilsonii mentioned above. These had all been planted barely ten days when the frost came, and with it the drought. As might be expected, the three plants of R. sinogrande soon showed signs of acute distress. Their magnificent, twenty-inch leaves turned brown and black, and before a month had passed they were as hideous as they had on arrival been beautiful. But having great faith in the donor's opinion that they should thrive even in so inclement a climate as west Cambridgeshire provided, they were treated well; we did not take up and burn these distressful relics, and soon after the beginning of May we were rewarded by the sight of new leaves growing out from the base of the dead foot-high stems. These stems were then cut away, and in a few weeks the leaves, five or six inches long, were making determined efforts to take the place of their deceased elder brethren. Unluckily, however, the efforts of the largest and best were frustrated by a rabbit which succeeded in getting inside the wire-surround, and it now has to make a renewed effort.

The plant of R. Sir Charles Lemon has never once looked back. It has been watered regularly, but the frost apparently did it no harm, and it has made a lot of new growth. It holds up it leaves at a healthy angle, displaying well the lovely rust-red tomentum. A plant of R. Loderi received from another source and planted out about the same time, has also come through so far with flying colours, and looks as healthy as possible.

Viburnum fragrans seems to have suffered neither from frost nor drought; nor has a three-foot specimen of Eucryphia Nymansay. The latter, however, had been planted twelve months before the drought came, so may have sent its roots down to dampish soil.

A collection of foreign Oaks is being made here, and of the sixty-odd species already represented, about twenty-five are planted out in permanent positions, the remainder being yet in the nursery. The former have come through with no apparent damage, except that a fine young plant of Quercus Muehlenbergii, about four feet high, was cut to the ground, or died back, after being moved last November. It has, however, started into growth again from the ground, so it may now establish itself. The same happened with two plants of Quercus (? Castanopsis) concolor and Q. caudata which were received from Cornwall just before the frost at Christmas—they were, apparently, lifeless in April, their leaves having withered up, and they looked only good for the bonfire. But by June they had made new growth, and now look quite healthy.

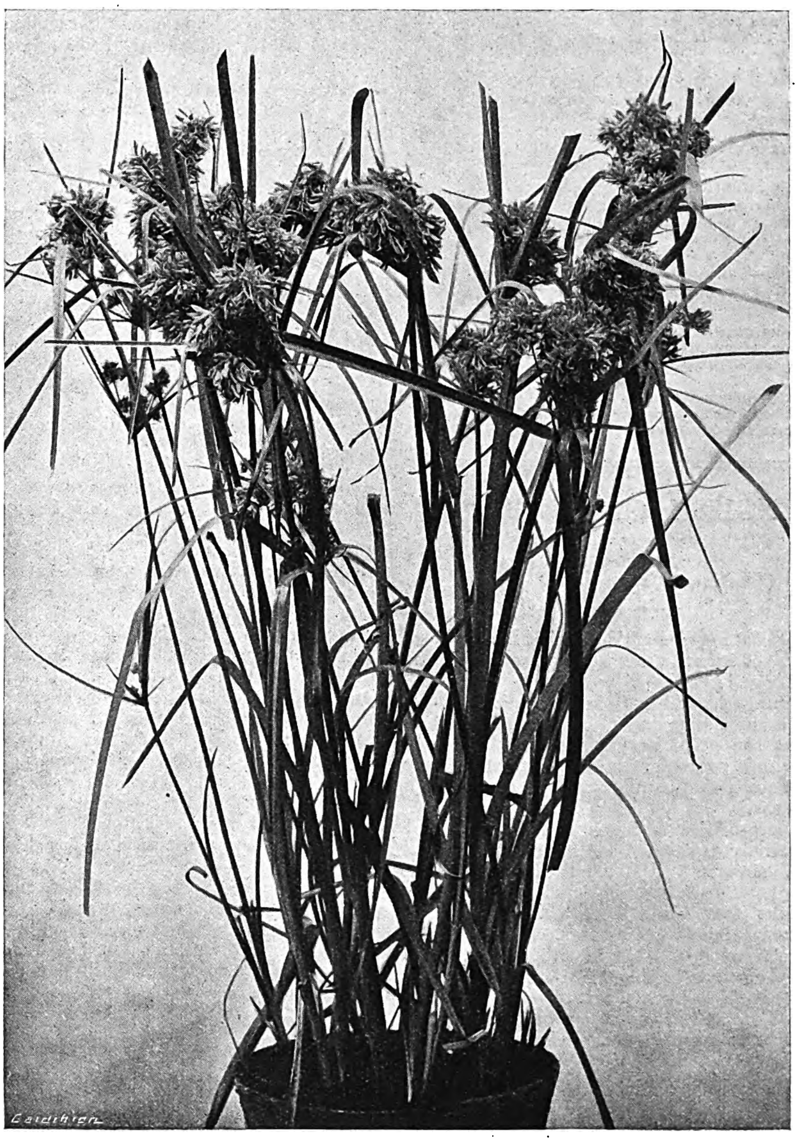

FIG. 146.—CYPERUS CONGESTUS (PARAMATTENSIS ?).
(see p. 307).

Of young Oaks in the nursery, which have had no watering, and a great deal of hot sun and no shade, those which suffered most were the Japanese and American evergreen Oaks, such as Q. glabra, Q. myrsinaefolia, Q. cuspidata, Q. phillyraeoides, Q. chrysolepis and Q. densiflora. Some of these are beyond recovery, but, fortunately, a number of seedlings of similar species are ready at hand to replace them, having grown up among a forest of weeds which were allowed to remain on the seed-bed as shelter.

Young deciduous Oaks in the nursery seem to have suffered very little, the only ones to look really bad being two plants of Q. conferta and Q. Libanii, while Q. Sargentii does not look too well. Five plants of Q. alba look as fit and fresh as possible, as also do plants of Q. pontica, Q. bicolor, Q. Bebbiana, Q. coccinea and Q. Kelloggii.

Beyond the few plants already mentioned as having died, our only other losses have been small plants of Magnolia parviflora and M. hypoleuca, and some Chilian plants, including Embothrium coccineum, Tricuspidaria lanceolata and Mutisia decurrens. It may be early days to congratulate our plants on the way they have come through this trying year, and perhaps we should "touch wood." But if there is any moral in these notes, it is to "hasten slowly" in the scrapping of plant material which may appear to have been killed after a hard winter—*vide* our experience with R. sino-grande and with three young Oaks. This advice was more than once given in these columns last spring by other writers, and to them I am grateful.

The rainfall, month by month, has been:—January, 1·42 inch; February, ·70 inch; March, ·09 inch; April, 1·29 inch; May, 1·13 inch; June, 1·06 inch; July, 2·13 inches; August, ·57 inch; and September, ·16 inch. *R. C. B. Gardner, Connington Hall, Cambridgeshire.*

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AN ENGLISH GARDENER IN CHILI.

(*Continued from p.* 228.)

ANOTHER species of Berberis which I have not yet identified is less common than B. Darwinii; it has pale yellow flowers more loosely arranged, and simple, elliptical leaves with, as a rule, only one pair of lateral spines, and one at the point of each leaf; the spines on stems and branches are also much larger (so much as one-and-a-quarter inch) and always set in threes.

In some localities, and growing in open and often extremely dry situations, is found a striking evergreen, shrub by Cassia, which forms dense clumps of dark green foliage, usually about six to eight feet high, occasionally reaching so much as twelve to fifteen feet. It freely produces large flowers of a bright golden colour and obviously belongs to Leguminosae. Another plant very conspicuous when in flower is a large evergreen Composite, most probably Senecio species; it has simple, entire, viscid leaves, about three inches long, and large, cymose inflorescences, the individual flowers being quite three inches across, and with ray florets broad in proportion.

Forming an effective contrast with this coarse-growing plant is the delicate-looking Fuchsia rosea. The flowers are small but plentiful and brightly-coloured, the corolla tube and sepals being rose-pink and the petals purple, effectively shown off by the small, bright-green leaves. This species makes a sturdy bush so much as eight feet high and several feet through; it also drops its leaves in drought, and the extremely succulent branches remain dormant until the rains.

Another plant peculiar to Chili is the gigantic Lobelia, L. Tupa, which grows ten to twelve feet high, the inflorescences being at least two feet long, and the individual flowers two inches. A closely allied species of similar habit, which I believe to be L. polyphylla, has dark chocolate or maroon flowers.

Climbing among the branches of the shrubs and trees, and with their roots in the decomposing leaves, are two species of Mutisia, M. ilicifolia and M. subulata, the latter being by far the best. M. ilicifolia has large flowers of a soft pink colour two to three inches across, but the plant is spoiled by the old dead leaves which are persistent and give it a very unsightly appearance. In Mutisia subulata the foliage is altogether finer and more graceful, and the flowers are brilliant scarlet.

Two perennial species of Eupatorium take advantage of the shelter and support of stronger shrubs, one having rose-coloured flowers and the other white. The same means of obtaining protection and light is employed by many perennial species of Calceolaria, although some of them make compact little bushes. Of this genus there are innumerable species; I have found so many as eight distinct species growing in one small valley, two of these being semi-aquatic (C. sonchifolia and C. scabiosaefolia). The most common species is C. corymbosa, and to my mind the best is one with very small, linear leaves and masses of bright golden-yellow flowers.

An equally well-known genus found here is Salpiglossis. S. sinuata flowers freely and reaches three or four feet high; it would, however, cut rather a poor figure if staged alongside present-day hybrids.

A lovely little plant which rejoices in a hot, dry bank, or similar situation, is a brilliant blue Sisyrinchium. Its flowers are fully two inches across, the golden stamens and styles contrasting well with the colour of the petals; it rarely grows more than four to six inches high. There are many other species of this genus, one which has thick, perennial, equitant leaves, and throws up an inflorescence so much as three feet high, with disappointing white flowers. Two other species have bright golden flowers, one only growing six inches and the other eighteen inches high.

Another lowly subject which delights in a hot, dry place is Stenandrium dulce, a tiny plant rarely more than two or three inches high, but belonging to that family of large, often coarse plants, Acanthaceae. Reference to my notebook gives the following details—"Flowers carried in small inflorescences on peduncles one-and-a-half-inch long, each flower arising from a bract three-eighths-of-an-inch long, and hairy. Colour, pink; petals being about half-an-inch long, gamopetalous, with tube half-an-inch long; two stamens are situated half-way down the tube and parellel, vertically, with it. Pistil three-eighths-of-an-inch long with forked stigma. Leaves simple, entire, ovate, dark green above, grey-green under. Whole plant covered with short, stiff hairs." The habit of the plant always reminds me of a Primula.

Side by side with this plant grows Verbena erinoides, the best species which I have ever seen here. It has clear rose-pink inflorescences and forms tufts six or eight inches high, but it is somewhat straggling in habit.

One of the earliest plants to flower after the rains is a small Oxalis; in some localities it covers large areas with a close carpet of gold about one inch to two inches high. Its flowers, fully expanded, are about one inch across and borne singly. It propagates rapidly by means of tiny bulbils, matures early and dies off, disappearing entirely until the following winter. *G. W. Robinson.*

(*To be continued.*)

SOME NOTES ON SALVIAS, ECONOMIC AND NATIVE.

THE extensive genus, Salvia, which contains so many beautiful species, is not well represented in Britain, there being only two native species, S. pratensis, L., or Meadow Sage, and S. Verbenaca, L., or Wild Clary.[*]

The latter is a rather coarse-growing perennial, attaining on an average a height of about one-and-a-half foot or more, and bearing whorls of rather small flowers, of a blue colour, which form terminal hairy spikes. The plant favours roadsides and waste places, especially on a gravelly soil, and is to be found, here and there, scattered over England, Ireland and the southern part of Scotland, although not in sufficient abundance to warrant it being described as a common British plant. A variety with purplish-red flowers, var. rubella, Jord. and F., has been found near Kew, in Surrey, and is justly described as very rare. The name Clary is derived from the Latin "*sclerea*," which has become corrupted to "Clear-eye." The reason for this is that the seeds contain an abundance of mucilaginous matter, and at one time it was customary to place one of the seeds in the eye so that the mucilage might remove any adventitious matters from it, thus rendering it more clear.

Salvia pratensis, our other native member of the genus, is an extremely beautiful plant. Like S. Verbenaca, it is a perennial, but it attains a greater height, and its flowers, borne in whorls forming a long, terminal spike, are much larger and of a gorgeous shade of blue. It is also characterised by the paucity of its stem leaves, by the shape of its radical leaves, and the fact that these are very much wrinkled.

Although not strictly an alpine plant, S. pratensis grows very abundantly in alpine and sub-alpine meadows and pastures, sometimes, as I have seen in Switzerland, occurring in such abundance as to make a mountain meadow appear quite blue from a distance. In Britain it is extremely scarce. There used to be a plant or two growing wild near Oxshott Station, in Surrey; but building operations have taken place there recently, which, I think, have destroyed it. At any rate, I could find no trace of the plant when I re-visited the spot last year. In Kent, however, there is a rather inaccessible wood, on one border of which this handsome Salvia grows in abundance, to which I generally make an annual pilgrimage for the pleasure of admiring it. Fortunately, the wood is well removed from the haunts of trippers, so there is little danger of the plant being exterminated. It was first recorded for this spot in 1699. The plant has also been recorded for a number of other English counties, but I have not seen it in these stations.

From the economic point of view, the most important member of the genus is undoubtedly S. officinalis, L., the common garden Sage, a native of southern Europe, of which many varieties have been produced as a result of cultivation. As a culinary herb, it stands in high repute, being especially palatable and wholesome as a seasoning for rich dishes, such as duck, goose and pork. At one time it was very highly valued for its medicinal properties, the name "Salvia" being derived from the Latin *salvere*, to be saved, the popular name of "Sage" being a corruption of this.

Nowadays, Sage is no longer an official drug in Great Britain, but the following quotation from Dr. Parkin's edition of Culpeper's *English Physician* will give a good idea of the wonderful medicinal properties which were at one time attributed to it.

"Jupiter claims this [the Sage] and bids me tell you, it is good for the liver, and to breed blood. A decoction of the leaves and branches of Sage made and drunk, saith Dioscorides . . . . causeth the hair to become black. It stayeth the bleeding of wounds and cleanseth foul ulcers and sores . . . . Orpheus saith, three spoonfuls (sic) of the juice of Sage, taken fasting, with a little honey, presently stay the spitting or casting of blood in them that are in a consumption. . . . Matthiolus saith, it is very profitable for all manner of pains in the head, coming of cold and rheumatic humours, as also for all pains of the joints whether inwardly or outwardly, and therefore helpeth the falling sickness, the lethargy, such as are dull and heavy of spirit, the palsy, and is of much use in all defluxions of rheum from the head, and for the diseases of the chest and breast . . The juice of Sage taken in warm water helpeth a hoarseness and cough . . . Sage is of excellent use to help the memory, warming and quickening the senses," and so on, this plant, indeed, seeming to have been regarded as a veritable cure-all. In the

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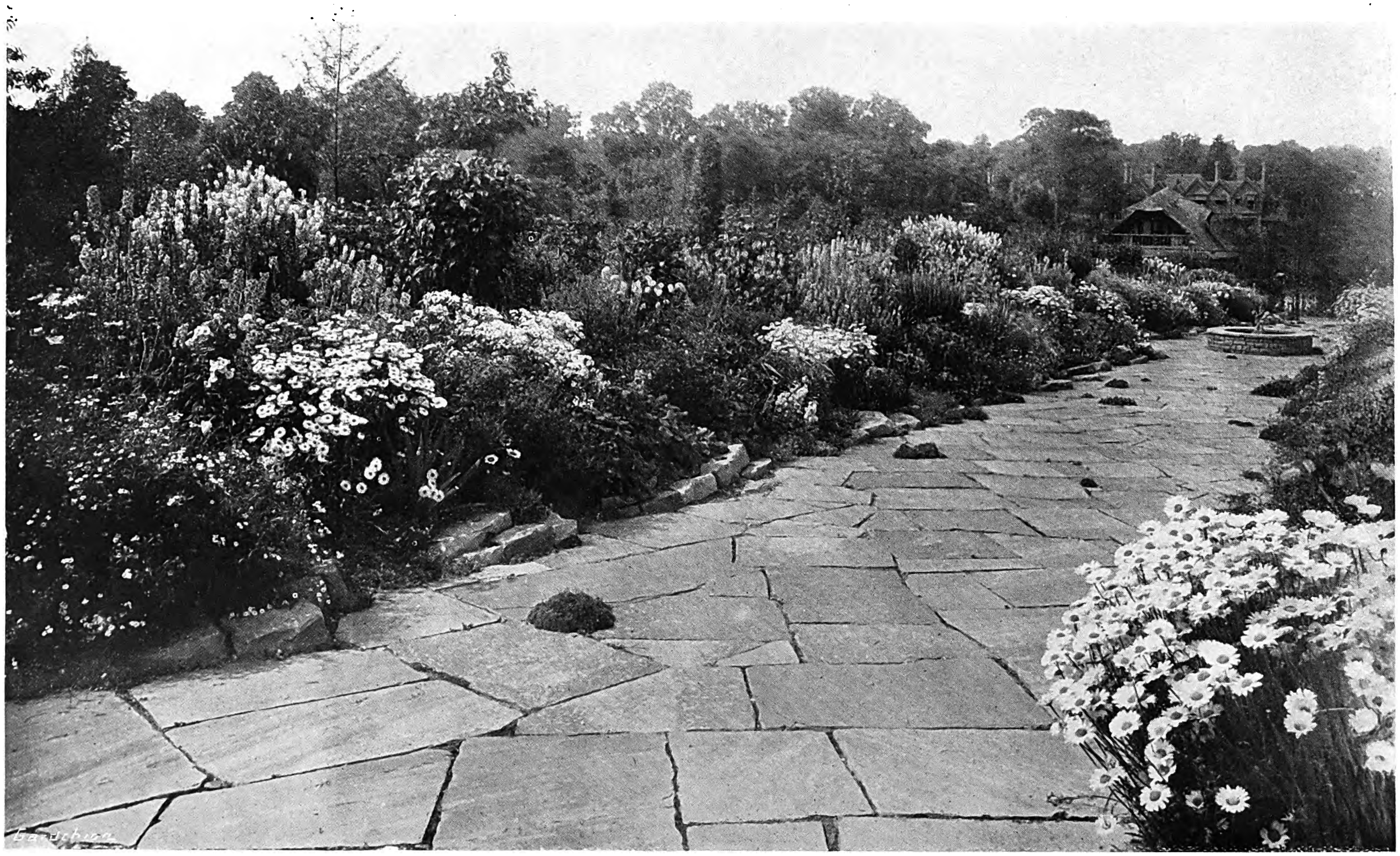
[*] A variety of the latter (Marquandii, Druce) with pale blue flowers rather larger than in the type, which occurs in Guernsey, may perhaps be entitled to specific rank, thus increasing the number to three.

Supplement to THE GARDENERS' CHRONICLE.



HERBACEOUS BORDERS AT THE MANOR HOUSE, STANMORE.

quaint English of rhymed botanical treatise based on Macer's mediaeval herbal—

> " Why of seknesse deyeth man
> Whill sawge [Sage] in gardeyn he may
> han."

Although, as might be expected, Culpeper's recital of the virtues of Sage is largely a farrago of nonsense, the plant is certainly not destitute of physiological action. It has carminative properties, whence its real utility as a condiment, and has been employed in the treatment of indigestion. On distilling Sage with water, a small quantity of a greenish-yellow volatile oil of penetrating odour is obtained. This, administered in sufficiently large doses, is stated to induce convulsions resembling those of epilepsy.

The oil, it may be mentioned in passing, is used to a limited extent in soap perfumery.

Another Salvia of some considerable economic importance is Garden Clary, S. Sclarea, L., a native of the south of France, Italy and North Africa. To this plant, which has been grown in English gardens for centuries, many wonderful medicinal properties have been attributed; but we may pass over these and consider the real use of the plant as a source of an essential oil of great value in modern perfumery. This oil is obtained by distilling cultivated plants or, preferably, only their flowers, with water in the perfumery factories of Grasse, in the south of France. It is known as " Clary Sage Oil." The odour of the oil is peculiar and attractive; it is reminiscent of Muscatel wines with a background, so to speak, of ambergris. It is especially useful in the compounding of certain perfumes from synthetic ingredients, as it endows them with a note of naturalness, a property due to its Muscatel-like odour. Although, at present, not a great deal of S. Sclarea is cultivated for perfumery purposes, there is a good demand for the oil, and a bright future for the plant.

The Muscatel-like odour of Clary has, it is stated, been taken advantage of by certain German wine merchants, who have used the plant to convert Rhinish wines into so-called " muscatels." The powdered flowers are also used, more especially in Turin, as an essential flavouring ingredient in the preparation of vermouth.

Uses have also been found for the Clary Sage water obtained along with the oil, when the plants or flowers are distilled, and which is pleasantly fragrant. It is employed in making certain wines and also as a diluent in the manufacture of liquid dentifrices.

In conclusion, it may be noted that the name of " Sage " has been bestowed on a number of other plants besides Salvias. One of these, Teucrium Scorodonia, L., is known as Wood Sage. It is a common plant in Britain, growing in woods and Heathy places, and has rather inconspicuous, yellowish-white flowers. It remotely resembles a Salvia. Other plants, not resembling Salvias at all, have no doubt gained the name of " Sage " on account of their real or imaginary medicinal properties. *H. S. Redgrove, B.Sc., A.I.C.*

PLANTS NEW OR NOTEWORTHY.

SALIX MATSUDANA, KOIDZ.

THIS interesting and attractive Willow is a native of North China, Manchuria and Korea. It has been described as the Chinese Babylonian Willow, and, in fact, the first specimens collected were indentified as Salix babylonica by Franchet and others.

Growing trees of S. Matsudana are readily distinguished from S. babylonica by their more upright habit, and the greenish, or yellowish, twigs, those of S. babylonica being a distinct reddish-brown or purplish colour. The leaves are narrow-lanceolate, two to four inches long, and one-third- to three-fifths-of-an-inch broad, bright green above, glaucous beneath.

S. Matsudana was introduced to America from Korea by Mr. J. G. Jack in 1905. The specimen illustrated (Fig. 147), was sent to Kew from the Arnold Arboretum, as a small tree, in 1913, with the information that it was a Willow (Purdom 281) collected by the late Mr. William Purdom in North China.

The tree is cultivated extensively in north China, and is the common Willow of Pekin. While it is a very useful tree for waterside planting, Mr. E. H. Wilson describes this Willow as thriving in China under the ordinary drier conditions of street, roadside and park. Certainly two specimens at Kew have withstood the dry conditions of the past summer well, in fact, better than some of our native trees.

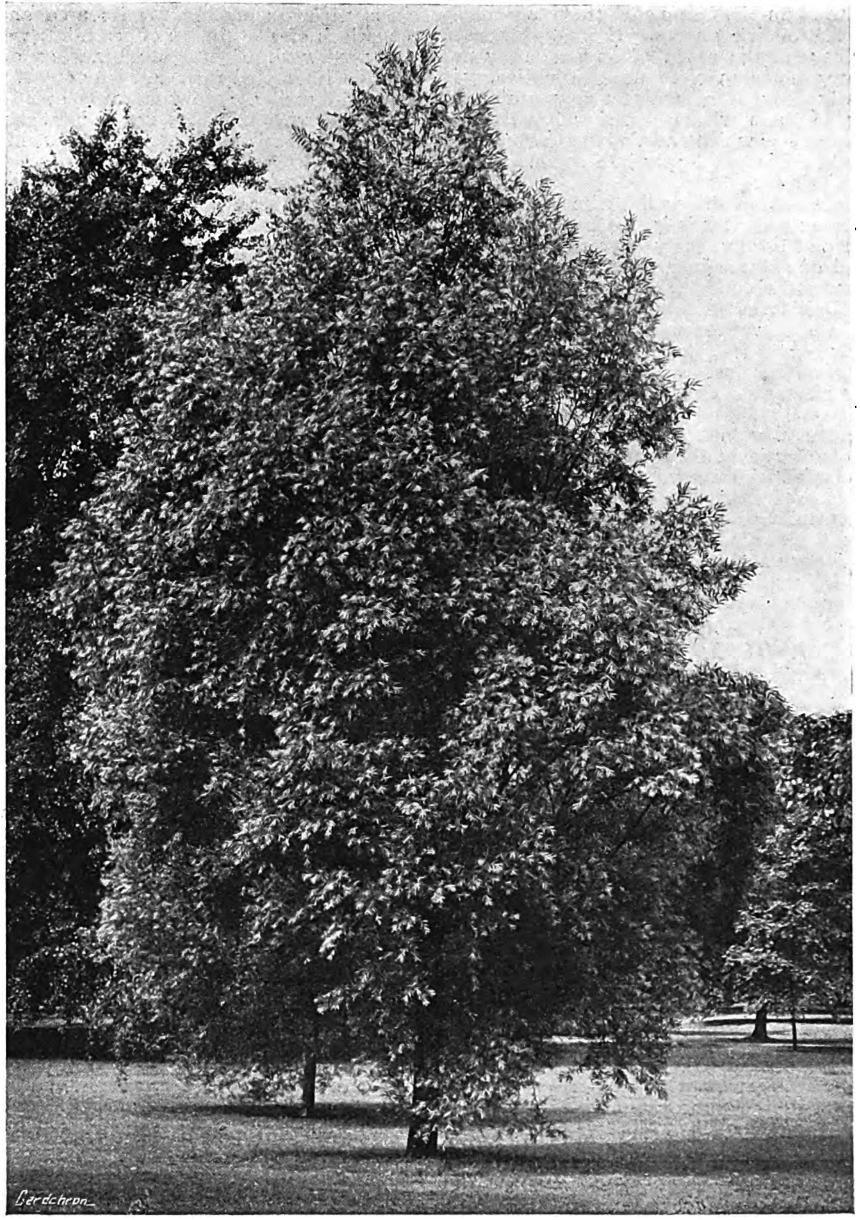


FIG. 147.—SALIX MATSUDANA.

The number of botanical species and hybrids of Salix is very large, but among them the Willows which make attractive specimen trees with good trunks are comparatively few. To these, S. Matsudana will be found a useful and distinct addition for pleasure ground, avenue, park and waterside planting. *A. Osborn, Kew.*

CYPERUS CONGESTUS (PARAMATTENSIS ?).

A FINE species of Cyperus has been shown on several occasions this year by Mr. Amos Perry, Enfield, who has usually had one or more specimens of it, in pans, in his displays of aquatic plants. Naturally, it bears a recognisable family resemblance to such an old favourite garden plant as Cyperus alternifolius (by the way, has anyone seen the variegated form of C. alternifolius during recent years ?), while cultivators of stove plants will have remembered the tall Cyperus Papyrus that was cultivated at one period in some private collections but is now seldom seen outside a botanic garden.

The newcomer (Fig. 146) appears to be more or less hardy. It was exhibited as Cyperus paramattensis, and, paradoxically, if it is the real C. paramattensis, then its correct name is C. congestus, a South African species that has been named C. Paramatta, Mart., then changed to C. paramatta, and later, to C. paramattensis, Link.—which is C. congestus.

This aquatic, new to gardens, is of sturdy growth, and bears heavy heads of flowers, so much so, that when seeds are formed the heads become heavy and the stems often find some difficulty in keeping them upright. At present C. paramattensis (or C. congestus) is not in cultivation at Kew, but plants are being obtained, and when these have been studied the name now used will be confirmed or otherwise.

The first volume of the *Index Kewensis* lists several hundreds of species of Cyperus and an even larger number of synonyms; from this multitude of synonyms it is obvious that species of Cyperus are not easy to distinguish and determine. But if Mr. Perry has not the right name, and even if it is found that C. paramattensis does not equal C. congestus in this case he has, nevertheless, a capital plant of its class and one which many plant lovers will be glad he has introduced to cultivation.

SOME DWARF VERONICAS.

LARGE as the number is of the rock garden Speedwells in common cultivation, the genus is so extensive that there is, outside the range of the more familiar ones, a useful selection of much interest and merit. Some of these are dealt with in the following notes. If none of them is rare, or beyond the reach of anyone, they are sufficiently uncommon to deserve notice, yet sufficiently easy of recognition to permit one to refer to them without getting involved in the difficulties which await the adventurer who would delve too deeply into the labyrinths of a conflicting race.

V. canescens might well claim a foremost place among such, for it is a plant that is not common and hardly likely ever to be, yet is possessed of extraordinary charm. With hair-fine stems and tiny leaves it films the cool but gritty soil it loves with a lacework of verdure so delicate that Arenaria balearica looks positively gross beside it. This, in itself, may be of so little account in the " furnishing " of the rock garden that the plant may easily be accidentally forked up and cast out. But when, soon after midsummer, this diminutive New Zealander is suddenly transposed from an almost invisible bronzy-green mesh into a fairy carpet of starry Speedwell-flowers in the most entrancing of clear porcelain-blues, it proclaims itself a plant of arresting loveliness, and one that suggests a dozen possibilities. This cheerful little mite is, unfortunately, not hardy everywhere, but it has a pleasant habit of seeding, and as often as not will perpetuate itself with a surviving seedling or two should the old plants perish. I quite thought, after 32° of frost last winter, that V. canescens would certainly never reappear here. A kind friend, sympathising with me in my bereavement, sent me a nice, fresh plant, but at the very end of the season V. canescens proved faithful to its traditions by turning up in the form of a microscopic seedling several yards from the spot occupied by its deceased parents. After which I can with a chastened spirit and a stouter faith continue, when leaves are falling, to label V. canescens with the inscription, *Resurgam.*

At the time of writing (mid-October) most of the Speedwells have better sense than to show their " darling blue," but that quaint species, V. pyrolaeformis, which a defective memory tells me Farrer found somewhere in China, is always ready to bear the tribal banner throughout the darkening days. This curious plant, with its downy, notched, rather strap-shaped leaves, generally re-awakens to life with the autumn rains, and unfurls a six-inch crozier of pretty lavender blossoms which, with the purple-tipped buds, might suggest a Borage rather than a Veronica. If not a brilliant performer, V. pyrolaeformis is an easy, good-tempered, hardy plant that will flower at intervals from spring to November, and one that always attracts the attention of lovers of out-of-the-way herbs.

V. Teucrium var. dubia, of many names and infinite variation, does not come within my scope here, since it is the deservedly well-loved Veronica of every rock garden. But its lovely pure white form is not so often seen as it ought to be, and no less can be stated of the rosy-pink. Both are first-rate plants if not quite so robust as the type, but if one dare make comparison among the daughters of a family who are all so fair, I would give first place to that admirable little plant, V. T. var. alpina. That, at any rate, is the long name which accompanied the gem here, a treasure of comparatively small size, yet with large leaves and enormous flowers in bold, upright spikes of the richest violet-blue. Full of quality as this alpine form of a familiar plant undoubtedly is, it is not less full of the most commendable courage.

If it is of no great value as a flowering plant, V. telephifolia wins its way into our gardens and old pig-troughs by reason of its neat little rosettes of very glaucous leaves, so fleshy, compact and nicely rounded that the unwary might at first glance suppose them to belong to some Sedum. The cone-shaped flower-sprays which arise just above the foliage in summer are, in their daintiness and keen, clear blue, quite what one would expect in a Speedwell of such refinement. I have not found this choice species tender, despite the fact that it comes from Palestine, but although I fancy it is grateful for a sheltering pane of glass in winter, the self-sown seedlings it produces emphatically disdain such swaddlings.

V. satureioides is not with me the fat and luscious thing it is in some gardens. Still, it is vigorous enough for its area and, as if conscious of the virtues of restraint, weaves its ropy network of clinging branches over and around its buried rock and is content. These ground-hugging growths are but sparsely provided with the dark green, leathery leaves, and for several weeks in the early summer the mound bristles with erect, rather dumpy flower spikes two inches or so long. If the blooms bear some resemblance to those of the lovely V. saxatilis (V. fruticans ?), as do the leaves; they are of a more sober colour, a heavy, sullen violet which, however, can be very telling against, for instance, the milk-white of Iberis saxatilis. Indestructible hardiness and perennial vitality are attributes that none can wrest from this gentle Dalmatian, and its inflorescences outlive those of V. saxatilis by several weeks.

There is no happier plant in this garden than V. repens. If its perfectly prostrate mats of vivid, shining green may not infrequently contend for place and power with that other little Corsican, Mentha Requienii, it never seriously offends by aggressive trespass. Delighting in a cool soil, it will crop-up even in the bog and, grateful for any spot it may call its own, will sheet its refreshing verdure with the starch-white, almost stemless, wide-eyed flowers. This, with Anagallis tenella and the above-mentioned Mint, weaves a charming carpet over a waterside bed containing Gentian Pneumonanthe, Parnassias and hardy Sarracenias, incidentally checking all weeds. There is stated to be a pink form of V. repens, but this I have never been able to secure.

In a dry moraine, V. Nummularia is an attractive object, its loose trailers, set with small, round, hair-fringed, overlapping leaves of a dark green, rambling over the shingle with an easy grace. The four-lobed flowers which are borne at the tips of erect shoots, are a full-toned Speedwell-blue, soft and rich, and above the average in size. V. coriaceae is somewhat after the same style, larger in leaf and more woody, perhaps, in its flopping branches and not, I find, quite so ready with its pale blue blossoms.

No one who can resist the appeal of a quiet rose-pink in a setting of silver-grey will overlook V. caespitosa, but this Levantine species is a plant for dry, sunny positions, and one that merits the care suggested for V. telephifolia. This is a species of very special daintiness, but one worthy of much patience and the best our climate can give. Easier but bigger, yet of the same intriguing loveliness, is V. cinerea. But although this species is stated to have rose-pink flowers, I have become so accustomed to one with blue, which seems more permanent and robust, that only the voice of authority induces me to believe that this blue-flowered V. cinerea is not the type but a colour form.

The old V. pectinata one does not see so often these days, but it is a very worthy member of the mat-forming fraternity for the most meagre of soils. Its happy temperament is beyond praise, it gives us that same delightful harmony of soft pinks and blues on a background of silvery woolliness and its flowers are the largest of any trailing Speedwell I can at the moment recall. This brave old plant, which has been known to us for over a hundred years and which draped our rock gardens in the days when they were called " lapidiums " is still good enough to claim respectful attention. V. peduncularis, which is nearly as old and in some respects a still better plant, is even more uncommon.
N. Wales.

NOTICES OF BOOKS.

Garden Trees and Shrubs.

THIS book, by Mr. Walter P. Wright,* is complementary to several other books by the same author on other phases of garden work and garden plants, such as *Alpine Flowers and Rock Gardens, Roses and Rose Gardens,* and *Perennials and Herbaceous Borders.* The first edition was published in 1913, and with this second edition the opportunity has been taken of directing attention to some of the numerous new introductions of recent years. The book contains a good deal of useful information upon trees and shrubs, their cultivation and arrangement. It is written in a popular style and the author does not attempt to enter into lengthy or scientific descriptions of the many plants he mentions.

Garden Trees and Shrubs runs to 355 pages, including a good index, and there are some eighty-three illustrations and diagrams of full-page size ; twenty-four of the illustrations are in colour. The matter is divided into five parts under the headings, " The Beauty and Value of Shrubs and Trees " ; " Practical " ; " Selective," " Descriptive " ; and " Supplement." In the first part, the author is inclined to waste space on word painting, but by a little sifting it is possible to discover a good deal of Wheat among the chaff. The part dealing with practical questions will appeal most strongly to the owners of gardens, for it is in this part that questions of planting, pruning, propagation and such like matters are discussed. The information given is mostly sound, but it hardly goes far enough in some instances, for example, " The enemies of shrubs and trees " are dismissed in less than two-and-a-half pages, whereas less than a page is devoted to transplanting by means of machines. The section devoted to the selection of subjects for various positions may be profitably studied by intending planters, for the author has taken a good deal of trouble in making his selections. One, however, hardly agrees with him in describing Pinus Lambertiana as one of the hardiest of the Pines and revelling in the buffeting of the gales (see p. 71). He very properly emphasises the necessity of ample spacing. Too many people plant both trees and shrubs for immediate effect, and after a few years find that they have grown together into a dense mass, with scarcely a plant showing any individuality. Planters should try and visualise trees and shrubs at maturity when they are planting them, and space them wide enough apart to allow of proper development, then interspace with temporary plants that may be removed as occasion warrants.

In his descriptive part of the book, the author deals with a large number of trees and shrubs, giving a few words about each, and in his supplementary section he refers to new and little-known plants. The book is written for the amateur rather than for the experienced gardener or nurseryman, and the author has succeeded in producing a work that will be of considerable interest to many people.

Daffodil Growing for Pleasure and Profit.

THIS is quite the most comprehensive work on the Daffodil which has been published†; it is a mighty tome of 412 pages ! It is not the sort of book to take up like a novel and read straight off the reel. Rather is it to be regarded as a valuable work of reference, to be looked into again and again. I cannot find that the author has missed any point that would be likely to interest any lover of this Queen of Spring Flowers. There is interesting matter upon the history of the flower, and most excellent papers on hybridisation by the Rev. G. H. Engleheart, Mr. Guy L. Wilson, The Brodie of Brodie, and Mr. Herbert Chapman. Species and wild forms are dealt with by Mr. P. R. Barr, and Division XI (Various) by Mr. Herbert Longford. Progress of the Daffodil from 1890 to 1910 is from the capable pen of Mr. P. D. Williams, while the Commercial Culture of Daffodils is discussed by Messrs. F. Secrett, Abiss and Champernowne. Mr. George Monro gives a selected list of the best market Daffodils; Mr. A. M. Wilson gives a short but very valuable paper on cultivation; Mr. S. P. Wells writes of the Daffodil from many points of view, but chiefly from the commercial side, while Pests and Diseases are discussed by Messrs. Hodson and Beaumont.

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* *Garden Trees and Shrubs*, by Walter P. Wright. Published by George Allen and Unwin, Ltd., Ruskin House, 40, Museum Street, London, W.C.1. Price 15/- net.

† *Daffodil Growing for Pleasure and Profit*, by Albert F. Calvert, F.C.S. Published by Messrs. Dulau and Co., 32, Old Bond Street. Price 21s. net.

A list of awards by the R.H.S. Narcissus Committee from 1911 to 1928 is useful for reference.

At the end of the volume will be found some two hundred photographic reproductions of Daffodil portraits, both new and old varieties. Most of these are good, some super excellent, and a few not quite good enough for such a fine book. If I may venture to criticise further on the illustrations, I would suggest that the one entitled Narcissus minor (No. 46) is not the true N. minor, but N. lobularis which is grown and sold by the Dutch growers as N. minor. The true N. minor is just like a tiny Golden Spur, with narrower foliage than N. lobularis. Again, I think N. odorus var. Campernellii (174) should be N. odorus var. rugulosus, a flower with broader perianth segments than the Campernelle Jonquil. I have discovered a few printers' errors, but that is to be expected in so large a book—what a job proof reading must have been!

On the whole, I have nothing but praise for this great effort of Mr. Calvert's, and would advise every lover and grower of the Daffodil to secure a copy if he has not already done so. I may add that the first time I sat down to write these few notes, I became so absorbed in articles by Engleheart and Guy Wilson that the total results were two or three lines at the head of the paper, which were scrapped on the following night! *J. Duncan-Pearson.*

THE CONTROL OF GREENHOUSE PESTS.

Glasshouse conditions are conducive to the rapid increase of many pests, some of which are carried in on plants and soil, while others enter by ventilators and doors. These pests present a formidable problem to the owners of large and small glasshouses alike. Spraying and hand-picking have both been tried, but fumigation has proved the quickest and most efficient means of combating the common and related pests which thrive under glass.

The most important fumigant used up to the present has been hydrocyanic acid gas. Two scientists at the Agricultural Experimental Station, Ithaca, New York, have been experimenting for the past two years on fumigants for the greenhouse, and the Cornell University recently published the results of their investigations in an interesting little pamphlet. They found that fumigation with Tobacco products, Nico-fume and Nico-fume liquid, was the safest, easiest and most efficacious method of destroying greenhouse aphides, during any time except the hottest summer weather, but that cyanide compounds, such as calcium cyanide and calcyanide, were the most effective against white flies and scale insects.

The first thing to do is to find the cubic contents of the greenhouse, and it is advisable to keep the figures handy for future reference. The greenhouse should then be made as air-tight as possible, all openings and crevices around pipes, doors, ventilators, etc., being filled in, as the fumes will not do their work properly unless sufficiently concentrated.

As the nicotine content of Tobacco stems and leaves is never uniform, varying with the kind of soil on which it is grown, and many other factors, the best and safest plan, according to the two scientists mentioned above, is to use some standard nicotine fumigant, the contents of which are definitely known. After many analyses, the investigators found that Nico-fume Tobacco is eminently suitable and easy to use. The 1-lb. tins of this are very handy for the small greenhouse and conservatory. Only a little powder should be purchased at a time as it deteriorates rapidly. Nico-fume liquid proved quite as satisfactory in destroying the aphides, but was more troublesome to use.

It was found that a two-and-a-half-inch flower pot, quite full of the powder (3½ ozs.), burned on a raised fine-wire screen or sieve, killed ninety-five to ninety-eight per cent. of the aphides. This proved the most economical and satisfactory method of fumigating a volume of 5,000 cubic feet, while it had not the slightest injurious effect on the plants. In a large greenhouse, the requisite amount of the powder should be divided into several small piles in different parts of the house, so that the fumes may be distributed evenly.

A quiet, cool night should be chosen for the fumigation, so that the ventilators may be kept closed until morning. Care should be taken to avoid the powder flaring up suddenly, as it may do if old and dry. When new, it is quite moist and smoulders away slowly. Nico-fumes do not damage any of the plants ordinarily grown in greenhouses, with the possible exception of Violets and Cyclamens.

Cyanide products are the most thorough in destroying white flies and scale insects, and they also destroy aphides. After several experiments, it was found that G. grade calcium cyanide, or the purer form, calcyanide, used in the proportion of ¼-oz. to each 1,000 cubic feet, was most effective in the ordinary greenhouse. If the house is old, and not air-tight, use one-third of an ounce.

Neither of these two products is as dangerous to use as the old form, sodium cyanide, which involved the use of water, acid and pots, and was always liable to be given off in a highly concentrated and very poisonous form. Nevertheless, it is well to remember that all cyanide compounds are extremely poisonous and dangerous to human life.

The effectiveness of calcium cyanide lies in each grain coming into contact with the air, and it should, therefore, be scattered very thinly and evenly, preferably from a glass tumbler with a perforated top, down the whole length of each walk. It is very important that the walks should not be too moist, and that the powder should be weighed accurately. Where delicate and tender plants are present, three-sixteenths-of-an-ounce should be tried first, and then another fumigation given with a slightly larger dose if not entirely satisfactory.

The rays of the sun, acting on plants surrounded by hydrocyanic acid gas, may injure them, so that fumigation should be carried out at dusk. It is not advisable on rainy nights, as the house should be so dry as possible at the time, and no watering should take place for a few hours afterwards. It has been found that three hours fumigation, in a tightly closed new glasshouse, has been sufficient to control certain pests, but it is better to allow fumigation to proceed throughout the night, in the average greenhouse, opening the ventilators early in the morning, and watering only when the house has been well aired. *Bio-chemist.*

HOME CORRESPONDENCE.

Cuttings planted with Fruit stones or grains of Wheat beneath them.—A French gardening proverb states that all woody cuttings will take root if struck on October 25—St. Catherine's Day—

> "*A la Sainte Catherine*
> *Tout bois prendracine,*"

so it is a very general practice among gardeners in rural districts in France to devote that day to striking cuttings. A well-known French botanist and entomologist, who is the schoolmaster of a tiny village in the high Pyrenees, is also a very keen and knowledgeable gardener. One day he came to the pension in which I was staying, and asked all the guests there if they would save the stones of all the Peaches, Apricots and Plums which they had, and give them to him. I ventured to ask him what he wanted them for, and he answered that he would save them for the cuttings he was going to take on October 25. I suppose I looked puzzled, for he went on to explain that if the stones of stone fruits are planted in firm ground and covered lightly with soil, and a cutting, either woody or herbaceous, inserted above, each one of these, the resultant plants will start life doubly healthy and vigorous. Since then, many other French gardeners have told me the same story, but they often put a grain of Wheat beneath the cutting instead of the stone. Last autumn I was telling this to a young workman who was interested in my gardening operations. "Why, that's what my mother always did," he told me, "She put a grain of Wheat under all the cuttings she took, and I well remember what wonderful plants she had. She was a Devon woman. Her father always did the same, she said." I wonder what property in the stone of the fruit and in the Wheat grain is responsible for the sturdiness of plants grown from cuttings struck above them? *Victoria Slade.*

Bees and Fruits.—This season, or rather, the year of 1929, has been filled with withering hopes and unexpected happenings. For the first time in my memory I found honey bees attacking fruits, expecially Apricots and Plums. Recently, when going to pick the remaining fruits from Apricot trees, I found several wasps, as usual, but I found a far greater number of honey bees; in some cases there were three or four in one fruit, and they were so persistent that when the fruits were removed in a basket, they followed them. I also found the same state of things among the Plums, only in this instance there were no wasps, and the Plums were not thoroughly ripe. This unusual taste on the part of bees I ascribe to the long drought we have experienced in this district, nearly everything being dried and withered in consequence. Owing to this state of things, no doubt, all flowers had a very limited supply of nectar, while many plants refused to open their blossoms at all. *C. Morris, Holme, Hunts.*

Auctioneers and Estate Agents.—May I be allowed to submit that it is, nowadays, almost a duty for persons following various professions and businesses to belong to an appropriate organisation? Election to regular professional bodies is not obtainable merely at will, and thus, membership of such is, in itself, some guarantee to the public of the member's probity and knowledge. The auctioneer and estate agent, like the solicitor, often has to handle large sums of money, either, perhaps, as the result of auction sales, or by way of deposit on purchase of real property. At the present time, it is true that any one can call himself an auctioneer and estate agent by paying a few pounds annually to the Revenue, and there is no evidence that the Government has, so far, contemplated reforming this state of affairs by the promotion or by the support of an equitable, although compulsory, Registration Bill. This *laissez-faire* attitude cannot, however, last for ever. What is true of auctioneering and estate agency is also true of architecture, accountancy and insurance. All these, and many other callings, are agitating for better control, and sometime the Government will be compelled to listen. When registration does come, insistence upon educational qualifications, so well as upon personal honesty and financial stability, will naturally follow. My Society obtained Incorporation from the Board of Trade in 1924, and it was then laid down in its "Articles of Association" that after the end of 1929 all elections would ordinarily be by examination. Therefore, it is only during the next three months that auctioneers and estate agents, surveyors, valuers and appraisers, rating officers, etc., may apply for Election on the "Practice Qualification," which means, broadly, on their professional experience instead of by the passing of semi-scholastic and semi-technical examinations. The Society has now a membership of over 2,000, is firmly founded financially, has a growing Benevolent Fund and Library, and is managed by a Council of practical men in intimate touch with the profession, which effectively pursues a thoroughly progressive policy. I shall be pleased to give further details, both of Election on the Practice Qualification, and of the examinations—the fifth annual session of which will be held next April—to any who write to me at the below-mentioned address. *John Stevenson, General Secretary, Incorporated Society of Auctioneers and Landed Property Agents, 26, Finsbury Square, E.C.2.*

MARKET FRUIT GARDEN.

The long drought was broken at last by heavy showers on the last two days of September—earlier, by the way, than was that of last year, when relief did not come until the second week of October. The question is, has the rain come soon enough to help late varieties of Apples? In some districts the fruits are dropping badly, and must be picked. In my plantations there is, so far, not an abnormal number of windfalls, in spite of a couple of not very violent gales. I intend, therefore, to carry on in the ordinary way with picking, and not to hasten the harvesting of varieties which have not yet reached maturity or attained full colour. I am not at all sure that, even now, there may not be some slight increase in size; and a quarter-of-an-inch means a good deal in the commercial value of the crop. Apples and Pears are undoubtedly very late in my district this year, and it seems worth while to run some risk in the hope of further development as a result of the rain. Cox's Orange Pippin has already attained good size, and need only hang a little longer to gain colour. Lane's Prince Albert has already been picked to prevent dropping, to which it is particularly liable. Allington Pippin always hangs well and can safely be left until last. The only real anxiety is the extremely heavy crop of Bramley's Seedling. In this case colour is of small importance, but any little increase in size is worth a good deal in these days when only the largest Apples are in demand for cooking.

Effects of the Drought.

Both trees and bushes in my plantations have withstood the drought surprisingly well, and just as successfully in grass as under cultivation. Just a few trees close to a tall shelter belt dried up completely, the leaves withering instead of assuming autumnal tints. The rest of the trees have remained green throughout. In some cases, where the crop was really too heavy, more moisture would have been beneficial by increasing size, although there has not been much to complain about. The worst effect of the drought has been the very slow colouring of Apples. This was particularly noticeable in the case of Worcester Pearmain, which, with me, often colours all round. It was necessary to pick over the trees repeatedly; and they were not stripped until nearly the end of September. This slow colouring is always a feature of dry seasons, moisture so well as sunshine being required. The misty mornings experienced towards the end of the month brought about some improvement in this respect. Another common effect of drought is the prevalence of physiological troubles, such as bitter pit and glassiness in Apples, most noticeable this season in James Grieve, Charles Ross and Rival. Two hot summers have apparently favoured American blight, which has spread to a serious extent in my plantations. The trouble is not confined to the usual patches on the older wood. In some varieties, especially Allington Pippin, the insects are festooned along the young shoots. Dusting with three per cent. nicotine powder was tried on some of the trees carrying the most valuable crops, and this certainly killed the majority of the insects. With a small hand machine it would have been impossible to treat the whole area; but the result is so good that the purchase of a larger machine will have to be considered if the attack develops badly again next year. Dusting is costly for material but economical for labour, and it does not require water, which is liable to be unobtainable for liquid spraying in a dry summer.

Heavy Marketing.

The work of packing and marketing fruits is very heavy this season, and, owing to the low prices ruling for most crops, the reward is not what it should be. Plums, however, were a very light crop, and were always in demand; yet prices were distinctly low, except right at the end, when a few Presidents did realise 7s. per box of 14 lbs., equal to 14s. per half-bushel. My best yield was of Belle de Louvain, the trees being fully loaded; and it was fortunate that there was a strong demand just when that variety was ready. The only period when there was anything like a glut of Plums was during the Czar season. This variety has been planted so widely, and is such a heavy bearer, that it is often too plentiful in the markets. The planting of Czar is still advocated, just because it is the easiest Plum to grow. Personally, I shall never plant another tree of it. What we want very badly is more dessert Plums. Victoria is the only true dessert variety which is commonly grown for market; but there is a ready sale also for ripe samples of Czar, Belle de Louvain, Pond's Seedling, and even Monarch for eating raw, although these can barely be described as being really of dessert quality. The true dessert Plums are all stated to be shy bearers. We are, therefore, badly in need of new varieties.

Apples are the heaviest crop I have ever had, and are accounting for most of the hard work of packing and marketing. Dessert Apples have sold well, and have been the bright spot of the season. Beauty of Bath, of which I sold over twenty-one tons, served me very well, as also did Worcester Pearmain. Many hard things are said about the latter; but I have not lost confidence in it, and intend to plant more of it. For weeks I have been selling the best grade at 8s. to 10s. per half-bushel box, and smaller Apples in half-sieves at 4s. to 7s., according to size. Extra large specimens in single-layer trays realised 2½d. per Apple, as they generally do. Worcester Pearmain may not be a connoisseur's Apple, but it is certainly in favour with the general public. In districts where it colours well it is undoubtedly a profitable variety. It has many virtues as a commercial Apple. It bears very regularly and is of ideal shape and appearance for packing. It is liable to scab, but puts up with any amount of spraying, so that the disease is easily controlled. Cooking Apples, on the other hand, have been a very poor trade since the very earliest were disposed of. For weeks I could not realise more than 7s. for the largest specimens packed in standard bushel boxes. Only recently did the last of Lane's Prince Albert make 10s. It is to be hoped that this means that the trade for cooking varieties is improving, for there are tons of Bramley's Seedling and Newton Wonder to be dealt with.

Frost and Spray Injury.

The severe frosts of February did more harm in my plantations than appeared at the time. The bark was then seen to be split on the stems of a few trees. Later on a good many more were noticed with the bark killed all down one side of the stem, but not split. During the summer the bark in some of these cases has died right round the stem, so that the trees are doomed and must be sacrificed. Bramley's Seedling is one of the varieties most commonly affected. This variety, which we used to think so hardy, is turning out to be delicate in several ways. Frost is responsible also for some of the cracking and roughness of skin in a proportion of the Apples; but I have to admit, after all, that still more of this is due to spraying with Bordeaux mixture just before blossoming. I have had some suspicion about this for several years, but this season, when the Bordeaux mixture was made with hydrated lime instead of freshly-slaked lime, there is no doubt about it. The injury is worst where spraying was done latest. The varieties most affected are Beauty of Bath, Cox's Orange Pippin, Norfolk Beauty and Lane's Prince Albert. I am loth to abandon my programme of Bordeaux mixture just before blossoming and lime-sulphur twice afterwards, as it has given almost 100 per cent. control of scab; but an alteration will have to be made. Next year I shall probably apply the Bordeaux mixture earlier, at the green cluster or "mouse-ear" stage of the buds, and follow with lime-sulphur at one part in forty at the pink bud stage, and with one or two sprayings of more dilute lime-sulphur after the fall of the petals. A good many growers are now adopting earlier spraying against scab, and there is evidence that it is necessary in order to make sure of a good control of the disease in any year. In some seasons the scab is not distributed early in the spring, and then the earliest applications are wasted. In other seasons the disease is active long before the pink bud stage, and then the early work is very valuable. I do not doubt that the hydrated lime formula for Bordeaux mixture, which is a great convenience, will be quite harmless for early use; but it is not safe so late as the pink bud stage. *Market Grower.*

THE STRAWBERRY RED SPIDER.

In view of the prevalence of the Strawberry Red Spider (Tetranychus telarius, L.) in many parts of the country this summer, it is of interest to record a few observations relating to this mite.

The Strawberry red spider is the same species as that which occurs under glass and often causes so much damage to the Tomato, the Cucumber, and other plants of the greenhouse.

Although the red spider lives and feeds upon the Strawberry for the greater part of the year, it is not noticeable to the casual observer until the latter part of July or August. This is easily explained. During May and June the mites are scattered on the under surfaces of the leaves and among the fine hairs on the stems. Greenish white eggs are present on the foliage also, usually around the veins and on the unopened leaflets. Frequently less than a dozen red spiders are to be found on any one leaf during these months. In addition, the red spiders are not red in colour at this period of the year. They are either a dirty yellowish colour, of a greenhish hue, or may be yellow with darker markings upon their backs. There are two dark spots on the back near the head.

In some years the red spider may occur in considerable numbers upon Strawberry plants during May and June, but this has not been general this season.

In July, especially during the latter part of the month, red spiders increased very considerably in number and could be seen quite easily with the naked eye on the under surfaces of the leaves The mites, their cast-off skins and eggs, literally covered the lower surfaces of many of the leaves.

The red spiders bred very rapidly all through August and during the first week of September.

The mites feed by piercing the leaves with their mouth parts and sucking out the juices from the tissues. When the mites have been feeding continuously for some time, the effect upon the plant becomes evident; the young green leaves tend to lose their fresh colour and the older foliage turns brown and dries out prematurely. Whether this damage is of economic importance or not remains to be proved.

A very severe infestation does not necessarily occur at the same time in different parts of the country. For example, red spider appeared to be causing most damage to the plants during the first and second weeks of August in many parts of Kent, while in a Strawberry-growing district near Cambridge the worst damage was noted during the last week of August and in September.

In the Maidstone district comparatively few red spiders were found upon the plants during the first week of September. Many cast skins were observed on the leaves, and a few eggs and immature mites were present also.

The absence at this time of many of the adult mites from the Strawberry plants may be explained as follows:—In September the mites prepare to go into hibernation. When ready to hibernate they become brick-red in colour.

The mites hibernate in various situations, but usually choose a place in the vicinity of the Strawberry plants. They may be found in little colonies among the dead leaves and under stones and clods of earth. In addition, they may be found in numbers inside pieces of straw that have been placed around the plants to protect the fruits earlier in the year. Some of the red spiders remain on the plants all the winter, and these are found frequently in the crowns or other sheltered places.

The mites hibernate in this manner until the following spring.

It would appear that the Strawberry red spider is of considerable economic importance, especially in a dry season such as the present one, and it would be of interest to know whether this mite is connected in any way with one or more of the Strawberry diseases that are so troublesome at the present time. *A. M. Massee, East Malling.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)
(*Continued from p.* 288.)

WALES.

Cardiganshire.—All the fruit trees flowered very freely in this district and have fruited well, with the exception of Apples, which dropped very considerably owing to the drought. Strawberries were very good. The following varieties of cooking Apples have good crops: King's Acre Bountiful, Bramley's Seedling, Lady Henniker, Annie Elizabeth and Newton Wonder. Well-cropped dessert varieties include Langley Pippin, Gascoyne's Scarlet, Beauty of Bath, Cox's Orange Pippin, Gladstone, Allington Pippin and King of the Pippins. The best Pears are Fertility, Williams's Bon Chrêtien, Souvenir du Congrés, Doyenné du Comice, Pitmaston Duchess, Conference and Clapp's Favourite, while Plums which have fruited well are Czar, Monarch, Victoria, Pond's Seedling and Transparent Gage. The soil here is cold and wet, overlying slaty rock. *W. Phillips, Derry Ormond Gardens, Llangbi.*

Carmarthenshire. — The fruit crops in general have been very good, especially Raspberries, Black, Red and White Currants, and Gooseberries. I have not grown Strawberries for the past two seasons owing to the prevalence of mildew, but I have put down a new bed this season. The Apple and Pear crops are very good, although many fruits fell owing to the drought. The soil here is light for a depth of about two feet six inches, and overlies clay. *W. Robinson, Golden Grove Gardens, R.S.O.*

Carnarvonshire. — Strawberries were the worst on record, the only variety which produced fruits of any value being Givon's Late Prolific. The severe winter killed a great number of the plants outright, and then the drought played havoc with the remainder. Our soil is very light, over a gravelly subsoil, therefore the effects of drought soon become apparent. Taken as a whole, the fruit crops generally are a good average, and the quality is good. *J. S. Higgins, Glynllivon Gardens, Llanwnda.*

Denbighshire.—Owing to the very severe winter, fruit trees in general benefited much by the long rest, and a fine show of blossom resulted, but owing to the very dry weather and cold nights, Apples and Pears failed to set heavy crops. Peaches, Nectarines and Cherries cropped abundantly, and all small fruits, with the exception of Raspberries, carried very heavy crops. The canes of the Raspberries suffered badly during the very severe frosts, in fact, many were rendered useless. Strawberry plants, although appearing practically dead with the bad spell of weather, fruited exceedingly well. *R. H. Crockford, Horsley Hall Gardens, Gresford.*

——It is very pleasing to report another average crop of fruits, Plums being the only failure. Some varieties of Apples are carrying very heavy crops, notably Lane's Prince Albert, Red Victoria, Bramley's Seedling and Lord Derby. Bush fruits cropped well, as also did Strawberries. The soil here is rather heavy, overlying marl. *J. A. Jones, Chirk Castle Gardens, Chirk, Wrexham.*

——Considering the cold spring, fruit crops have been much better than was expected. Apples are very patchy, some trees bearing average crops, while others have none. Bush and stone fruits carried average crops, although the drought adversely affected the quality of the fruits. *F. C. Puddle, Bodnant Gardens, Tal-y-Cafn.*

Flintshire.—Apples are a very good crop, with the exception of Bramley's Seedling and Newton Wonder, which were damaged in the pink bud stage by frost. Pears are a disappointment as they promised so well, but frosts damaged the blooms, and even the fruits after they were set. Plums were patchy, good to very good in places, but bad in others; on the whole, there was an average crop. Cherries were under average, but the quality of the fruits was good. Peaches and Nectarines were a very good crop; better than we have had for some years, and where watering was done the quality of the fruits was very good. Small fruits generally were not up to the average, frost damage and drought causing a good deal of fruit dropping. Strawberries were not quite up to the average as frost damaged the first flowers, but the quality of the fruits was good. Nuts are a good average crop. *Harry L. Jones, N.D.H., Padeswood Hall Horticultural Centre, near Mold.*

Glamorganshire.—In this district there has been a good general crop of fruits. Very little damage was done by frosts, but a quantity of Apples and Pears dropped owing to overcropping and also dryness of the soil in the case of recently planted and transplanted trees. It is noticeable that some Apples that bore heavy crops last season, particularly Newton Wonder, are scantily laden this year. Gooseberries were plentiful, and Raspberries, Strawberries and Currants also have carried good crops of sound fruits. The soil here is rather light loam, overlying limestone. *W. E. Wright, Tregarth Gardens, Creigian, near Cardiff.*

—— All fruit trees blossomed well, but much damage was done by cold south-east winds, especially to large exposed trees, most of whose fruits are on the protected side. Cordon Pears on walls have good crops of clean, well-formed fruits. The fruit crops, on the whole, are satisfactory. *Robert Carter, Miskin Manor Gardens, Pontyclen.*

(*To be concluded*).

VEGETABLE GARDEN.

CONCERNING ONIONS.

Often when flower-heads are developed on Onions they are simply broken off, leaving the hollow of the stem open; often, too, this is not done until the blossoms are almost appearing. It is far better to use the knife and cut off in the solid tissue, just below the bud; and the earlier this amputation is performed the better, whether the patient be Onion or Shallot.

About a year ago, my gardener came elated with tidings of the only true and certain mode of preventing bolting—it was to remove much of the roots when transplanting, a routine performance, according to some French writers. The practice was essayed, with the result that about three of every seven plants bolted, thus hardly confirming the validity of the mode and contrasting with the neighbouring bulbil-raised plants of which only some three bolted in three ten-yard rows. For many years the bulbil method has uniformly done better here than the transplantation of August sowings.

Several varieties have been tried (Brown Globe, Long Keeping, etc.), but the classic Jaune de Mulhouse seems to take a deal of beating for the purpose. The seeds are thickly sown—a patch of two feet square suffices to raise some hundreds—and the poorest patch of gravelly soil is selected; cautious hand-weeding is indicated; if raised before the green withers little trouble is needed to find the tiny bulbs; these we ripen in trays and store them over winter in a shed or cool greenhouse. For our soil we use bulbs of about five to eight millimetres, say about a quarter-of-an-inch, larger ones being rejected; in some soils those up to three-eighths-of-an-inch may be usable, therefore an experiment of different sizes may be made as a guide. Set them out in some open weather, in February, or thereabouts, but in the ridges between drills and completely buried (the same as for Shallots), for if not well rooted before they grow, the thrushes, blackbirds, etc., will pull them up; later rake away the soil to expose the bulbs. There would seem to be some economy in seeds in this practice, less labour and little or no loss from bolters.

The Tree Onion (otherwise Egyptian Onion, and its congener the American Catawissa) seems to have come from China (D. Bois), where it was described at the end of the fourteenth century. When cultivated in the orthodox way, the reward is comparatively disappointing in amount, and it is not very commonly grown. By the rubric, we plant out the bulbils in the spring and are to get a crop of bulbs which should not rush into bulbil-apology-for-blossom until the next year; its harvesting is contemporaneous with other Onions. Be this method as it may, a variant makes it bridge a gap usefully.

There often comes a time when the stored Onions are finished in the spring and the new are not yet ready for pulling. In this instance of time the Tree Onion may be made quite useful. Plant the little bulbs in autumn (best, perhaps, in September), probably with the precaution against birds, given above. They soon push out and grow more or less all the winter, so that when spring comes they lightly turn to thoughts of bulb-making; if this is allowed to happen, the "Leek-like growths" of some inch or so in diameter, will rapidly become woody and fibrous, in fact, they are heartily spurned from the kitchen. If, however, their blossoming is stopped by cutting off the summits so soon as they are recognised, quite a useful set of long, Leek-like, cylindrical Onions are available for the kitchen, probably until "Onions come again." Thus one may bridge over the lacuna between old and new—a matter sometimes of importance.

There seems to be some error in D. Bois (*Les Plantes Alimentaires*, to be considered the fourth edition of the indispensable *Potager d'un Curieux*), for he puts it as Ail Rocambole (Allium Scorodoprasum), which as a Garlic sort should have flat leaves. Vilmorin leaves us uncertain, for his description is vague, and what we grow as Rocambole has Garlic-like leaves, although it does not make bulbils instead of blossoms.

We also grow a strain of Leek which has a habit of making, mostly, flowers at its head, but these are mixed with a variable proportion of bulbils, not, however, on every head. It had a Balkan origin. These bulbils are quite minute, and could hardly be utilised for pickles as may those of the Tree Onion. *H. E. Durham.*

FOREIGN CORRESPONDENCE.

HETEROSIS.

The interesting remarks on the above in your issue for June 22, 1929 (Vol. LXXXV, p. 455), reminds me that, apart from Maize, there is another subject that comes under the same heading, although as a rule, true varietal stocks of it may, and generally are, raised from seeds. If you consult the current season's catalogue of Ernst Benary, Erfurt, you will note, among the novelties, a Tomato he calls Heterosis. This novelty differs from the general type, in that it will not breed true from its seeds, so that the same cross has to be made year after year in order to secure it. What the parentage is, Mr. Benary does not state. He claims that it is extraordinarily vigorous, resembling the variety Lucullus, but much earlier both indoors and outside. It is a tremendous cropper, and it is claimed it will out-yield any other variety by twenty to twenty-five per cent.

It is of interest to note, too, that the Benary Begonias Prima Donna, Broadcast, Bonfire, Pink Perfection, Erfordia and Glory of Erfurt, are heterozygous varieties, and cannot be raised true from selfed seeds. *T. A. W., New Jersey.*

SOCIETIES.

ROYAL HORTICULTURAL.

The Fruit Show.

(*Concluded from p.* 294.)

Single Dish Classes: Apples.

The classes for single dishes of specified dessert and cooking Apples provided a capital display of grand fruits, and in the majority of the classes the number of entries was very gratifying and competition was keen.

For a dish of Adams's Pearmain, W. P. Metcalfe, Esq. (gr. Mr. C. A. Fane), Stone Hall, Oxted, was first, and this exhibitor also showed the best Claygate Pearmain. Twenty-three dishes of Allington Pippin were shown, the fruits exhibited by F. J. Long, Esq., The Moorings, Belmont, being adjudged the best; as also were his fruits in the popular class for Cox's Orange Pippin, thirty-one dishes of which were entered.

W. J. H. Whittall, Esq. (gr. Mr. J. M. Grant), Grayswood Hill, Haslemere, was first for American Mother, and for King of the Pippins, showing grand fruits of each; while of the twelve dishes of Blenheim Pippin, that staged by Mr. C. Butt, High Park, Isle of Wight, was considered the best. Mr. A. L. Linfield, The Homestead, Old Bletchley, was first in the popular class for Charles Ross; Mrs. J. J. Barrow (gr. Mr. H. E. Kemp), Holmewood, Langton, was first for Duke of Devonshire; while Mr. J. A. Stidston, Bishopsteignton, led for Egremont Russet.

Mr. A. H. Pullen, Hawthorne Road, Wallington, was a good first in the class for Ellison's Orange, and was also first for James Grieve, showing excellent fruits of both; while Mr. E. G. Hunt, Fremington, Barnstaple, showed the best dishes of King's Acre Pippin and Superb. Mr. E. Reynolds, The Avenue, Watford, was first for Orleans Reinette.

There were nineteen excellent dishes of Ribston Pippin shown, Mr. F. J. Long being awarded the first prize; while Mr. J. A. Stidston scored with Rival, and was also first for St. Cecilia. W. J. H. Whittall, Esq., exhibited the best dish of Sturmer Pippin, and was also first for a dish of any late dessert variety not included in the specified variety classes, showing good fruits of Golden Russet.

The best dish of William Crump was that exhibited by R. J. Corbett, Esq. (gr. Mr. J. Jones), Ymp-y-Maengwyn, Towyn; Captain J. P. Whiteley (gr. Mr. L. R. Coles), Bletchley Grange, Bletchley, was first with grand fruits in the class for a dish of an early dessert variety not included in the schedule, showing St. Edmund's Russet, while Mr. E. G. Hunt was first for any dessert Apple not offered for sale before 1919.

In the section for single dishes of cooking Apples, J. H. London, Esq. (gr. Mr. J. Bond), Olantigh, Wye, was first for Annie Elizabeth, while of the twelve exhibits of Bismarck, that entered by W. J. H. Whittall, Esq., was awarded the first prize. The last named exhibitor also led for Blenheim Pippin (large fruits), for Encore, and for Gascoyne's Scarlet.

The Earl of Sandwich (gr. Mr. W. J. Prowting), Hinchingbrooke, Huntingdon, showed grand fruits of Bramley's Seedling, and was awarded the first prize in this popular class; C. G. A. Nix, Esq. (gr. Mr. E. Neal), Tilgate, Crawley, was first for Crawley Beauty, and Miss M. Gardner (gr. Mr. G. Sturt), Oakhurst, Harrow, led for Dumelow's Seedling. Viscount Hambledon (gr. Mr. W. Turnham), Greenlands, Henley, scored a success with Edward VII, while the Earl of Bessborough (gr. Mr. T. A. Tomalin), Stansted Park, Emsworth, Sussex, was first for Golden Noble; for Warner's King, and for any variety for which there was not a special class, showing grand fruits of Loddington.

H. W. Henderson, Esq. (gr. Mr. F. L. Pike), West Woodhay, Newbury, was the first prize winner in the class for Golden Spire; and Mr. A. R. Carlisle, The Mattings, Henlow, led for Lane's Prince Albert; while Lord Waverley (gr. Mr. R. H. Crockford), Horsley Hall, Gresford, was successful with Lord Derby, in splendid condition.

Mr. J. A. Stidston was the only exhibitor in the class for Monarch, and he was awarded the first prize; W. J. H. Whittall, Esq., exhibited the best dish of Newton Wonder; and Mr. A. J. Smith, The Yews, Bengeo, Hertfordshire, was first for Peasgood's Nonesuch, with fruits of excellent quality. Mr. J. A. Stidston scored another success in the class for a dish of The Queen, while Mr. E. G. Hunt showed the best fruits of Rev. W. Wilks. J. Caird, Esq. (gr. Mr. F. Moon), Wimbledon Park, showed the prize-winning dish of Stirling Castle.

Single Dish Classes: Pears.

As in the single dish classes for Apples a high standard of quality and keen competition were evidenced in the various classes for single dishes of varieties of dessert Pears.

Mr. A. H. Pullen was first for Buerré Bosc, and Major C. H. Drummond (gr. Mr. L. A. Smith), Cadland Park, Southampton, was awarded the first prize for Beurré d'Anjou; for Glou Morceau, and for Louise Bonne of Jersey, the latter being a very popular class, with twenty-two entries.

There were fourteen exhibits in the class for Beurré Hardy, and many grand fruits of this popular variety were shown, the best being those from H. F. Baker, Esq. (gr. Mr. J. Lovell), Red Roof, Broom Road, Teddington; this exhibitor also scored with Winter Nelis. The Earl of Sandwich was first for Beurré Superfin, and H. L. Hornby Lewis, Esq. (gr. Mr. A. E. Friend), Danesfield Park, Marlow, showed the best Comte de Lamy. R. J. Corbett, Esq., was first for Conference, there being seventeen entrants in this class; while Lord Suffield (gr. Mr. A. J. Jones), Gunton Park, Norwich, was awarded the first prize for his dish of Doyenné du Comice; for Marie Louise, and for a dish of an early variety not included in the special class list, showing good fruits of Triomphe de Vienne.

W. P. Metcalfe, Esq., was the first prize-winner in the class for Durondeau; H. W. Henderson, Esq., showed the best Easter Beurré; Lady Mary Morrison (gr. Mr. W. H. Mills), Fonthill House, Tisbury, was first for Emile d'Heyst, and the Hon. Henry Coventry (gr. Mr. J. G. Jackson), Tendsing Hall, Stoke-by-Wayland, scored with Fondante d'Automne.

For a single dish of Joséphine de Malines, Lt.-Col. F. J. B. Wingfield Digby (gr. Mr. E. Hill), Sherborne Castle, Dorset, was awarded the first prize; E. H. Sikes, Esq. (gr. Mr. G. Diggens), Freyerning Grange, Ingatestone, showed the best Marguerite Marillat and Viscount Hambledon was first for Pitmaston Duchess.

In the class for a dish of Thompson's Pear, Mrs. Winterbottam (gr. Mr. G. Brown), Oakley Place, East Grinstead, showed the first prize set, while the Duke of Newcastle showed the best of the twenty-two dishes entered in the class for a dish of any late variety not included in the special class list, his variety being Charles Ernest. J. H. London, Esq., showed, in Triomphe de Vienne, the best-flavoured Pear not included in the single dish classes.

Special District Classes.

The classes confined to special districts, for fruits grown in the open, as usual proved very interesting, although some of the classified areas were but poorly represented.

Two classes were allotted to each district, one being for six varieties of Apples, four cooking and two dessert, and the other for six varieties of dessert Pears, one dish of each variety in each class.

In the classes open only to growers in Kent, Surrey, Sussex and Hampshire, no first prize was awarded for Apples, the second prize going to the Earl of Bessborough who, however, was first for Pears.

Lady Mary Morrison showed the best set of Apples in the class confined to Wiltshire, Dorsetshire, Somersetshire, Devonshire and Cornwall, her varieties being Cox's Orange Pippin, Herring's Pippin, Lord Derby, Ribston Pippin, Bramley's Seedling and Warner's King, and she was also first for Pears, showing excellent fruits of Marguerite Marillat, Beurré Hardy, Conference, Durondeau, Pitmaston Duchess, and Doyenné du Comice.

In the classes limited to growers in Oxfordshire, Buckinghamshire, Bedfordshire, Berkshire, Hertfordshire and Middlesex, A. R. Carlisle, Esq., was first for Apples, his varieties being Mère de Ménage, Newton Wonder, Cox's Orange Pippin, Rival, Cox's Pomona and Lane's Prince Albert; while Brigadier R. G. H. Howard-Vyse (gr. Mr. F. S. Cook), Stoke Place, Slough, was first for Pears.

Splendid fruits of Ribston Pippin, Superb, Gascoyne's Scarlet, Newton Wonder, Lane's Prince Albert and Bramley's Seedling secured for the Earl of Sandwich the first prize for Apples in the class confined to growers in Essex, Suffolk, Norfolk, Cambridgeshire, Huntingdonshire and Rutland; no first prize was awarded for Pears, but the Earl of Sandwich secured the second prize.

In the classes for growers in Lincolnshire, Northamptonshire, Warwickshire, Leicestershire, Nottinghamshire, Derbyshire, Staffordshire, Shropshire and Cheshire, the Earl of Ancaster (gr. Mr. F. J. Foster), Grimthorpe Castle, Bourne, was first for Apples, his best fruits being of Peasgood's Nonesuch, Allington Pippin and Bramley's Seedling, the first prize for Pears going to the Duke of Newcastle (gr. Mr. S. Barker), Clumber, Worksop, who had grand fruits of Marguerite Marillat, Pitmaston Duchess, Doyenné du Comice, Charles Ernest, Le Lectier and Conference.

The Earl of Coventry (gr. Mr. W. H. Wilson), Croome Court, Severn Stoke, Worcester, was first for Apples in the Gloucestershire, Worcestershire, Herefordshire and Monmouthshire class, with good dishes of Lady Henniker, Mère de Ménage, Newton Wonder, Blenheim Pippin, King of the Pippins and Ribston Pippin, the first prize for Pears being secured by Mrs. D. J. Mitchell (gr. Mr. A. W. Neal), Winchcombe. With a set which contained specially good fruits of Peasgood's Nonesuch and Bramley's Seedling, Captain Compton (gr. Mr. A. Mason), Newby Hall, Ripon, secured the first prize for Apples in the six northern counties and Isle of Man class, and Lord Hotham (gr. Mr. J. S. Coates), Dalton Hall, Beverley, was first for Pears. Lord Wavertree was first for both Apples and Pears in the classes for Welsh growers, his Apples being grand examples of Ribston Pippin, Mère de Ménage, Cox's Orange Pippin, Peasgood's Nonesuch, Rev. W. Wilks and Bramley's Seedling; while in the classes open only to growers in Scotland, Major E. L. Gordon (gr. Mr. J. Duff), Threave Castle, Douglas, led for Apples, his fruits of Rosebery and Ben's Red being of wonderful colouring; there were no exhibits of Pears.

The Earl of Bessborough (gr. Mr. T. E. Tomalin), Bessborough, Piltown, Kilkenny, was the only exhibitor of Apples in the Irish classes, and he was awarded the first prize, his fruits of Yorkshire Beauty, Hambling's Seedling and Royal Jubilee being very fine; the Earl of Bessborough was also first in the corresponding class for Pears. There were no entrants for the Channel Island classes.

Affiliated Societies Competition.

The Challenge Cup Competition, open to Societies affiliated to the R.H.S., provided one of the most attractive features of the Show. A collection of eighteen dishes of Apples and Pears (six varieties of dessert Apples, six of cooking Apples, and six of dessert Pears) was required, all of the fruits to have been grown out-of-doors, and by members of the Society staging the exhibit. Six grand collections of fruits were staged.

The Pangbourne and District Gardeners' Mutual Improvement Society was awarded the Challenge Cup and Silver-Gilt Hogg Medal for a superb collection, which included grand sets of Apples Peasgood's Nonesuch, Bramley's Seedling, Cox's Orange Pippin, James Grieve, and Ribston Pippin, and Pears Conference, Beurré Hardy, Pitmaston Duchess, Doyenné du Comice, Le Lectier and Souvenir du Congrés.

Non-Competitive Exhibits.

These assisted greatly in making this show a success, for several very extensive trade groups of fruits were staged, together with other exhibits of educational value.

One of the most meritorious groups in the hall was that set up by Mr. J. C. Allgrove, twice the size of the one he received a Gold Medal for at the previous show. Fruit trees in pots, all heavily laden with fruits, were arranged in association with baskets and dishes of numerous varieties, in an exceedingly attractive manner. Among the best of the fruit trees were the fan-trained Plums President, Pond's Seedling and Jefferson, while the baskets of Plums Coe's Golden Drop and September Prolific were excellent. The fan-trained trees of Peach Sea Eagle also were very fine, together with the pot trees of Apples S. T. Wright, Allington Pippin, and Gascoyne's Scarlet. Good dishes of Apples were of the varieties Charles Ross, Peasgood's Nonesuch, American Mother, Emperor Alexander, Belle de Boskoop, Ellison's Orange and Edward VII; while there were grand specimen fruits of Pears Beurré Hardy, Durondeau, Louise Bonne of Jersey, Doyenné du Comice, Pitmaston Duchess, Conference, and many others; Plums in baskets included excellent fruits of Wyedale, Coe's Violet and Late Orange. An excellently arranged group of first-class trees and fruits.

Messrs. George Bunyard and Co., Ltd., showed an extensive collection of Apples, Pears, Plums and other fruits, all in grand condition and in many instances richly coloured. Among Apples exhibited were Christmas Pearmain, Superb, Allington Pippin, Gascoyne's Scarlet, Ellison's Orange, Reinette Rouge Etoilée, Charles Ross, American Mother, Wealthy, Mère de Ménage, Twenty Ounce, Lady Sudeley, Smart's Prince Arthur, Withington Fillbasket and Emperor Alexander, while noteworthy among the many varieties of Pears were Pitmaston Duchess, Beurré Hardy, Beurré Diel, Glou Morceau, Marguerite Marillat, President Roosevelt, Beurré Superfin, Double de Guerre, Catillac and Doyenné du Comice. A very interesting and instructive exhibit.

Another splendid collection of fruits, attractively arranged, was that staged by Messrs. J. Cheal and Sons, Ltd., who, besides showing well-fruited specimen trees of Apple King George V, had large baskets of grand fruits of Apples Warner's King, Bismarck, Lane's Prince Albert, Arthur Turner, Herring's Pippin, King Edward VII, Charles Ross and Bramley's Seedling, and dishes of Mabbott's Pearmain, Ellison's Orange, Redcoat Grieve, Guelph, Red Wing, Rival, Forge, St. Cecilia, The Houblon and American Mother, with many others. Among their best Pears were Doyenné du Comice, Princess, Beurré Clairgeau, Beurré Bachelier, President Roosevelt, Conference, Beurré de Naghan and Glou Morceau.

Messrs. Daniels Bros. staged a small but choice collection of Apples and Pears, outstanding among the former being Herring's Pippin, Peacemaker, Lord Derby and Norfolk Beauty, while their Pears included Pitmaston Duchess, Conference, Marguerite Marillat, President Roosevelt and Louise Bonne of Jersey. They also showed branches of Black Currant Daniel's September heavily laden with trusses of fruits.

An extensive and representative collection of Apples and Pears of grand quality, was staged by Mr. R. C. Notcutt. His Apples included Rival, James Grieve, Anne Elizabeth, Allington Pippin, Duchess of Oldenburg, The Queen, Herring's Pippin, Ellison's Orange, Guelph, Blenheim Pippin, Monarch, American Mother, and Rev. W. Wilks, while among his Pears were good dishes of Winter Orange, Emile d'Heyst, Doyenné du Comice, Conference, Durondeau, Triomphe de Vienne, King Edward, Beurré Clairgeau, St. Luke, Beurré Baltet Pére, Le Brun and Pitmaston Duchess. He also showed dishes of Plums Monarch, President and Pond's Seedling.

The Barnham Nurseries, Ltd., had a good collection of Apples and Pears in baskets, the former including the varieties Red Victorian, Rival, Washington, Ben's Red, Charles Ross, Guelph, Charles Eyre, Peacemaker and Herring's Pippin; while the best of the Pears included Conference, Verulum, Souvenir du Congrés, Beurré Duboisson and St. Luke. Messrs. G. and A. Clark, Ltd., also staged a collection of many popular varieties of Apples and Pears; and Messrs. S. Spooner and Sons had grand baskets of Apples Allington Pippin, Worcester Pearmain, Hounslow Wonder, Lord Derby and Cox's Orange Pippin. Messrs. Herbert Chapman, Ltd. showed the crop of one espalier tree of Apple Saltcote Pippin, which would appear to be very free cropping, and Mr. J. J. Kettle showed autumn-fruiting Raspberries. Lovely bunches of Grapes Lady Downe's, Black Alicante, Muscat of Alexandria and Gros Colmar, in perfect condition, were exhibited by Messrs. J. Almond and Son.

Messrs. T. Rivers and Son arranged a grand group of fruit trees in pots, all very healthy and carrying good crops. They included Apples Peasgood's Nonesuch, St. Cecilia, Gascoyne's Scarlet, Wealthy, Cox's Pomona and King of Tompkin's County; Peach Salway; Plums President and Coe's Violet; and Pears Marguerite Marillat and Beurré Bedford. They also had baskets of grand specimen fruits of Apples Ribston Pippin, James Grieve, Melon, Peasgood's Nonesuch, King of Tompkin's County, Cox's Orange Pippin, Charles Ross and Washington.

Messrs. Laxton Bros. staged a group of baskets of first-class fruits of Apples and Pears surrounded by beautifully trained cordon trees of Apples and Pears. Noteworthy Apples which they showed were Lord Lambourne, Laxton's Epicure, Rival, Gascoyne's Scarlet and Laxton's Superb, while their Pears included Louise Bonné of Jersey, Marguerite Marillat, Doyenné du Comice and Beurré Bedford.

From the Royal Horticultural Society's Gardens, Wisley, came a representative collection of Apples and Pears, sixty varieties of the former and thirty-two of the latter being shown, together with vases of ornamental fruiting Pyruses, among which the Wisley Crab was notable.

The University of Reading Horticultural Department staged an educational exhibit consisting of Apples beautifully graded and packed for market; and excellent bunches of Grapes Lady Downe's, Black Alicante, Diamond Jubilee, Gros Maroc and Lady Hutt. The exhibit also contained baskets of numerous Apples and Pears, each variety being instructively labelled with the name, class, season and origin.

An interesting exhibit of growing plants of the Cape Gooseberry Gold Nugget, a basket of ripe fruits, and dishes of preserves made from them, was shown by Sir William Lawrence, Bt. (gr. Mr. W. Everatt), Burford, Dorking, while S. Brown Esq. (gr. Mr. H. Rosewell), Brownlands, Shepperton, staged an exhibit of fruits of Passiflora quadrangularis, and a magnificent bunch of fruits of Musa sapientum grown in the glasshouses at Brownlands. He also showed a fruit produced on Melon Earl's Favourite pollenated with Cucumber Carter's Improved Telegraph; the fruit was about six inches long and four-and-a-half inches through, distinctly and regularly grooved longitudinally, and dark green, mottled lighter green.

Mr. Walter Hearn, Cornerways, Spence Road, Chiswick, exhibited a small collection of Apples, and W. J. H. Whittall, Esq., showed single specimen fruits of 150 varieties of Apples grown on the greens and at Haslemere, at 600 feet above sea-level.

Vegetable Show.

The vegetable show, held in conjunction with the exhibition of fruits, was staged in the old R.H.S. hall, and although the exhibits in the competitive classes were, perhaps, not so numerous as in previous years, the general quality of the produce shown was high, and there were several grand trade exhibits.

Vegetable Collections.

The exhibits staged in the important class for a table of vegetables, ten feet by four-and-a-half feet, were extremely good. Viscount Hambledon (gr. Mr. W. Turnham), Greenlands, Henley-on-Thames, was awarded the Silver Cup and first prize, the points awarded his exhibit by the judges being:—Variety, 20 out of a possible 25; quality, 45 out of 55; and arrangement, 19 out of 20, making a total of 84 points out of a possible 100. The exhibit included orange and red Capsicums; grand Ailsa Craig Onions; white and red-stemmed Celery; Carrots New Red Intermediate and Long Red Surrey; Radishes, Runner Beans, Turnips, Potatos Red King, Catriona, Bishop, King Edward and others; Vegetable Marrows, Parsnip Tender and True; Cucumbers, Kohl Rabi Early Purple, Cabbage Lettuces, Cauliflower All the Year Round, Pea Gladstone, and others. Sir Randolf L. Baker (gr. Mr. A. E. Usher), Ranston, Blandford, was second, with 79 points, and Dr. J. A. C. Roy (gr. Mr. A. Falconer), Cheadle Royal Mental Hospital, was third, with 77 points.

In the class for a collection of twelve kinds of vegetables, one variety of each, Viscount Hambledon was again first with a grand set of Onion Ailsa Craig, Pea Gladstone, Tomato Best of All, Cucumber Everyday, Potato Arran Comrade, Beetroot Selected Black, Carrot New Red Intermediate, Runner Bean Prizewinner, Parsnip Tender and True, Celery Giant Red, Cauliflower Autumn Giant, and Leek Acquisition. Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex, was a good second, and Lord Riddell (gr. Mr. A. Payne), Walton Heath Golf Club, was third.

Six exhibits were staged in the class for a collection of nine kinds of vegetables, open only to amateurs who have not more than six employees in the garden, the best being that shown by Sir D. Watson, Bt. (gr. Mr. R. Macdonald), Burrswood, Groombridge, who had splendid specimens of Leek Royal Favourite, Onion Ailsa Craig, Cauliflower Michaelmas White, Carrot New Intermediate, Parsnip Tender and True, Potato Ben Lomond, Tomato Best of All, and Cucumber Delicacy. W. Robinson, Esq., Sunny Bank, Forton, Lancashire, was second; and Earl Beatty (gr. Mr. A. Barrett), Reigate Priory, Surrey, was third. C. Ward, Esq. (gr. Mr. A. G. Lane), Murrel, Ware, secured the first prize for a collection of six kinds of vegetables, with an excellent set, the Rev. F. G. Wyatt (gr. Mr. J. E. Shirley), Horley, being placed second; while in the class for six kinds of vegetables, open to those who employ a single-handed gardener only, F. Barratt, Esq., High Street, Eltham, was first and E. A. Whitlock, Esq., Alton, Hampshire, second, the former exhibitor including a grand set of Onion Premier in his collection.

Of the five collections of twelve varieties of Potatos, Viscount Hambledon's was considered the best, the dishes of Catriona, Bishop, King Edward, Di Vernon and Doon Star being outstanding; second, E. P. Dashwood, Esq., (gr. Mr. C. Fuller), Oxford; and H. W. Henderson, Esq. (gr. Mr. F. L. Pike), West Woodhay, Newbury, third. There were thirteen exhibits in the class for six varieties of Potatos immune to wart disease, the premier award being secured by Dr. J. A. C. Roy, who showed grand tubers of Edzell Blue, Bishop, Snowdrop, (Witch Hill), Mr. Breese, Sefton Wonder and Arran Comrade; second, Viscount Hambledon, with Catriona, Arran Comrade, Arran Rose, Bishop, Di Vernon and Snowdrop; third, Mr. F. Barratt.

Sir Randolf L. Baker showed the best collection of six varieties of Onions, his varieties being Gretton Globe, Ailsa Craig, Blood Red, Longkeeping, Red Globe and A.1; second, Viscount Hambledon; third, Lord Riddell. The premier award for a collection of six kinds of salad vegetables was won by Viscount Hambledon, who showed Cabbage Lettuce Ideal, Globe Beetroot, Cucumber Everyday, Tomato Best of All, Mustard, Cress, and Celery Solid White; Dr. J. A. C. Roy was second, and Lord Riddell, third.

Single Dish Classes.

In the classes for single dishes of vegetables competition throughout was keen, and produce of high quality was the general rule.

Earl Beatty was first for Runner Beans with grand pods of Prizewinner of even size and form, and Lord Riddell led for French Beans, his variety being The Prince. There were fifteen entries in the class for Beet, of the Globe type, the premier award being secured by Lady Stucley (gr. Mr. T. H. Bolton), Hartland Abbey, Devon, with fine roots of Sutton's Globe; second, Mr. M. G. Stuart, Hanwell. Mr. W. J. Cherry was first for long-rooted Beet.

Dr. J. A. C. Roy showed the best Brussels Sprouts, his dish being of medium-sized buttons of the variety Exhibition, other successes scored by the Cheadle produce being first prizes for Celeriac, Peas, Turnips, white-fleshed and also yellow-fleshed Turnips. Sir W, Lawrence, Bart., was first for Cabbages, with good specimens of Goliath; Mr. W. Robinson led for Cauliflowers, with lovely heads of Autumn Giant; the Rev. L. G. Wyatt secured the first prize for white Celery, and E. P. Dashwood, Esq. (gr. Mr. C. Fuller), Aston Rowant, Oxford, was first for red Celery.

Other first prize-winners in the single dish classes were A. D. Sanderson, Esq. (gr. Mr. A. E. Adlam), Selsdon Park Hotel, Sanderstead, for Cucumbers; Viscount Hambledon, for Leeks, Onions and kidney-shaped Potatos; Mr. A. C. Britten, 82, Glanthorne Road, London, N., for Marrows; G. Meyer, Esq. (gr. Mr. R. Cottam), Wistler's Wood, Woldingham, for Mushrooms; E. P. Dashwood, Esq., for Parsnips and round Potatos; S. Wallrock, Esq., for long or intermediate Carrots, and for any vegetable for which there was no special class, showing good specimens of Savoy Best of All; Earl Beatty, for stump-rooted or short Carrots; Sir Randolf L. Baker, for red Tomatos; and R. Chetwynd Stapylton, Esq., (gr. Mr. W. Meagen), Headland, Berkhamsted, for yellow Tomatos.

Non-Competitive Exhibits.

A spectacular, highly educational and very extensive group of vegetables was staged by Messrs. Sutton and Sons, all the produce displayed being in perfect condition. They showed lovely heads of Cauliflowers Early Giant, Autumn Giant, Autumn Mammoth, and All the Year Round; golden and red-fruited Capsicums; Celery Solid White, Superb Pink and Sulham Prize; Leeks Acquisition and Prizetaker; giant Cardoon Large Solid; Chilis, Aubergines, Globe Artichokes, Onions Ailsa Craig, The Sutton Globe, Long-keeping, White Leviathan, Park Hero, Crimson Globe, and others; Gourds in variety; Khol Rabi; red and yellow-fruited Tomatos; Cucumbers, Vegetable Marrows, Potatos in numerous sorts, and a host of other subjects. The whole made a magnificent display.

Messrs. Dobbie and Co., Ltd., staged one of their famous exhibits of Potatos, outstanding among their numerous varieties being Edzell Blue, Arran Crest, Mien's Early Round, Dunbar Cavalier, described as an immune King Edward; Quarantine Rosa and Quarantine Violette, two Potatos of French origin; Arran Banner, Arran Chief, Arran Comrade, Climax, Di Vernon, Herald, Kerr's Pink, Midlothian Early, Mr. Breese, Red King and The Ally.

This firm also set up an interesting exhibit (Fig. 143) consisting of seed heads of various vegetables grown on the firms seed farm in Essex, among the vegetables represented being Spinach, Carrot, Kale, Beet, Onions, Leeks, Peas and Beans, various Brassicas, Celery, Parsley, Turnip and Marrow.

In the interesting vegetable collection staged by Messrs. Barr and Sons we noted grand heads of Cauliflowers Best of All, Autumn Mammoth and All the Year Round; Celery Solid Pink and Solid White; Lettuce and Endive in variety; Onions of various types; Shallots, Tomatos, many varieties of Potatos, Maize, Jerusalem and Globe Artichokes; Cucumbers, Vegetable and Custard Marrows; Leeks Giant Winter and Prizetaker; Carrots, Turnips and several other vegetables and salads, the whole making a very praiseworthy exhibit.

Several floral exhibits were staged in the old hall. Dahlias were shown by Messrs. J. Cheal and Sons, Ltd., Messrs. H. Langridge and Co., Mr. J. B. Riding and Mr. J. T. West; Chrysanthemums by Mr. J. W. Forsyth; and Michaelmas Daisies by Mr. T. Bones, and the Gay Border Nurseries. Messrs. W. Wood and Son, Ltd., set up a mixed group of Dahlias and perennial Asters.

ISLE OF WIGHT HORTICULTURAL.

The above Association holds three exhibitions during the year, one in July, another in October, and a Chrysanthemum exhibition in November, and all of these are invariably popular.

The autumn show was held at the Drill Hall, Newport, on October 3, 4 and 5, and the result was a splendid exhibition of flowers and fruits, the vegetables, owing to the long drought, not being up to the usual high standard.

The Silver Challenge Cup presented by the President, Lady Seeley, for a collection in a space on stagihg not exceeding ten feet by four feet six inches, was won by the Gatecombe and Carisbrooke Horticultural Society, with a creditable display; while in the same section, for affiliated societies, the best group on a space six feet by four feet six inches was staged by the Sea View Horticultural Society.

For a collection of fruits—Apples and Pears—Mr. C. Butt, Ryde, was first; Mr. C. Bound, Norton, second; and General Leveson-Gower (gr. Mr. A. Baker), third. Some remarkably highly coloured Apples and fine Pears were shown in these collections. Prizes for graded Apples, packed ready for market, were won by Mr. G. Russell, Ryde.

The single dishes of Apples and Pears were very fine, Mr. Butt and Mr. Russell being the chief prize-winners.

The display of twelve Onions on trays was an outstanding feature; there were six competitors, and the winner was Mrs. Parsons (gr. Mr. W. Birch), Shanklin; second, Lt.-Col. Brent Good (gr. Mr. S. Jones), Norton. All showed fine specimens of Ailsa Craig, spring-sown.

The collections, of vegetables in trays, from scholars in elementary schools, created much interest, some creditable produce being shown. There were six lady competitors in the table decoration class, Mrs. W. H. Dove being placed first, with an arrangement of Rose Ivy May, and Miss Dove second.

The trade exhibits made a great display. The large and beautifully arranged collection of every section of Dahlias by Messrs. J. Cheal and Son, Crawley, was of outstanding merit. Mr. E. C. Goble, Ryde, had a smaller collection, and Mr. W. H. Dove, Newport, had a fine bank of early-flowering Chrysanthemums. Mr. Frank Barwell, Alverstone Nurseries, showed eighty baskets of distinct varieties of Apples. Rev. A. Dedemas, Yarmouth, staged an interesting collection of new and old varieties of Apples.

ROYAL CALEDONIAN HORTICULTURAL.

At the monthly meeting held at Edinburgh on October 1, Mr. George E. Greenhowe, Marischal College, Aberdeen, delivered a lecture on "Trials of Varieties of Black Currants in the North of Scotland." He showed, by means of lantern slides the chief distinctive characteristics of the different varieties, most of which were included in the East Malling classification, and specified Edina as the best in the trials, so far as weight of crop and freedom from big bud was concerned.

In the following table, the cropping results are shown, the figures in each relating to the average yield per bushel:—Edina, 11 lbs. 11 ozs.; Victoria, 10 lbs. 6 ozs.; Seabrook's Black, 8 lbs. 4 ozs.; French Black, 8 lbs. 1 oz.; Baldwin, 6 lbs. 6 oz.; and Boskoop Giant, 5 lbs. 2 ozs. Calculated at the rate per acre, the yield was as follows:—Edina, six tons; Victoria, 5¼; Seabrook's Black, 4⅛; French Black, 4; Baldwin, 3; and Boskoop Giant, 2¾. The lecturer stated he knew a grower in Morayshire who took 2¼ tons of fruits from half-an-acre planted with Black Currants, and a railway porter who made £30 from one-eighth-of-an-acre in his garden.

The Chairman, Mr. Robert Scarlett, did not think it possible to raise five tons to the acre, and said if growers got two-and-a-half tons they did very well.

Exhibits of Michaelmas Daisies by Messrs. Dobbie and Co., Ltd., and of Begonias varieties Optima and Elatior, by Messrs. Wilson and Co., were awarded Gold Medals.

In the competitive section, Mr. R. B. White was first for a vase of Chrysanthemums (Dick Barnes), and for four Carrots.

DERBYSHIRE HORTICULTURAL.

The first monthly meeting of the Derbyshire Horticultural Association was held in St. James's Hall, Derby, on September 30, when Mr. J. Woolman, of Birmingham, gave a lecture upon the cultivation of Chrysanthemums before a large gathering of members.

Mr. Woolman began his lecture with a brief history of the Chrysanthemum, and he stated it was not until the year 1764 that the first plant was brought from Japan. For centuries the Chrysanthemum has been held in high favour in both China and Japan, and it was a Mikado of Japan who instituted the Order of the Chrysanthemum as one of the highest Orders he could bestow. A Mr. Wheeler, of Oxford, was the first Englishman to grow Chrysanthemums successfully in this country, and this was about 1830. The first show is stated to have taken place in Norwich in that year, and the second in Birmingham in 1836, for plants. Stoke Newington was the first to hold an exhibition for cut blooms, and is stated to be the parent of the present National Chrysanthemum Society.

The treatment of plants from the time of taking the cuttings in November, December and January, through the various pottings in suitable composts, the stopping and timing, feeding, housing, watering and remedies for prevention of pests, claimed the interests of the keenest enthusiasts.

A display of early-flowering Chrysanthemums had been arranged, and Mr. Woolman, Mr. J. Coley, Duffield, and Mr. A. H. Harrison, Melbourne, put up collections, while the competition for the best vase of six disbudded blooms brought three exhibits in the professional gardeners' class, and six in the amateurs'. Mr. A. Turner, of Newton Solney, gained first prize in the former class, and Mr. A. Whitehurst was the winner in the latter, the flowers approaching the size of Japanese varieties; Certificates of Merit were also awarded.

Mr. Woolman, in responding to a hearty vote of thanks, spoke in high praise of the progress and activities of the Derbyshire Association, over two hundred new members having joined during the past twelve months, and he urged all lovers of the flower to do all they could to bring it into still greater prominence. After the meeting, the blooms were sold in aid of the Mayor's Hospital Fund.

GENERAL BULB GROWERS' OF HAARLEM.

The Gladiolus Committee of the above Society has made the following awards to Gladioli during the current year:—

First Class Certificates.

Abricot.—Golden-yellow, shaded apricot, with carmine stripe. Entered by Messrs. Bierde.

Mount Everest.—Flowers paper-white, in a broad, extremely well-formed spike. Also awarded a Trial Garden Award. Entered by Messrs. Alkemade.

Norma.—Flowers cherry-red, with a large, white blotch. Entered by Messrs. P. Byvoet and Co.

Rosette.—Soft pink, with small, carmine stripes. Also Trial Garden Award. Entered by Messrs. Alkemade.

Awards of Merit.

Adoration.—Scarlet. Entered by Messrs. Alkemade. Also received Trial Garden Award.

Anni.—Clear salmon-pink, with orange-scarlet yellow-striped blotch. Entered by Messrs. P. Byvoet and Co.

Asa.—Violet-purple with velvet sheen. Entered by Messrs. Pfitzer.

Azurea.—Soft bluish-violet, purple striped. Entered by Messrs. Pfitzer.

Chamberlain.—Salmon, with a scarlet blotch. Entered by Messrs. Alkemade.

Czardas.—Flaming scarlet with a dark purple stripe. Entered by Messrs. Alkemade.

Frans von Schubert.—Soft apricot-yellow, with a distinct, deep scarlet blotch. Entered by Messrs. Pfitzer.

Frau Dr. Adenauer.—Salmon, with vermilion stripes. Entered by Messrs. Graetz.

Garden Love.—Very soft, clear pink, with creamy blotches. Entered by Messrs. Alkemade.

Generalstab.—Cochineal-carmine. Entered by Messrs. Pfitzer.

Gloria Mundi.—Golden-yellow, without blotches. Entered by Messrs. Pfitzer.

Godetia.—Apricot rose, carmine striped, with geranium-red blotches. Entered by Messrs. N. and J. Roozen.

Good Hope.—A sport of Venus; rosy-white; semi-double flowers.

Graf Zeppelin.—Orange-scarlet, white-feathered, large flowers.—Entered by Messrs. Pfitzer.

King of the Reds.—Deep scarlet, with velvet sheen. Entered by Messrs. Pfitzer.

Libelle.—Violet. Entered by Messrs. Pfitzer.

Maagd van Orleans.—Milky-white, shaded cream. Entered by Messrs. Pfitzer.

Massenet.—Vermilion-red on pink. Entered by Messrs. N. and J. Roozen.

Mother Pfitzer.—Sulphur-white, shaded green. Entered by Messrs. Pfitzer.

Mr. Dix.—White, with creamy blotch. Entered by Messrs. Pfitzer.

Perle des Jardins.—Very soft strawberry-pink. Entered by Messrs. Alkemade.

Pink Pearl.—Soft pink-rose, creamy-white blotches. Also Trial Garden Award. Entered by Messrs. P. Byvoet and Co.

Poolija.—Pure white. Entered by Messrs. Pfitzer.

Queen Louise.—Clear white, shaded creamy-white on the falls. Entered by Messrs. Pfitzer.

Queen Mary.—Orange-pink, with purple-striped blotch. Entered by Messrs. Alkemade.

Red Beauty.—Geranium-red. Entered by Messrs. Alkemade.

Rheinperle.—Creamy-white, feathered pink. Entered by Messrs. Graetz.

Rokoko.—Soft china-blue, with purple marked, violet blotches. Entered by Messrs. Pfitzer.

Summer Beauty.—Distinct soft carmine-pink, somewhat deeper flamed at the ends of the petals. Entered by Messrs. Velthuys.

Verdi.—Pink, with large, creamy-white blotches. Entered by Messrs. Alkemade.

Wolga.—Scarlet, with carmine blotch. Entered by Messrs. Pfitzer.

Bianca (primulinus).—Sulphury-white. Entered by Messrs. P. Byvoet and Co.

Grandiflorus Rosemary.—Peach-rose and creamy-yellow. Entered by Messrs. P. Byvoet and Co.

Scarlet Bedder.—Deep orange-scarlet. Entered by Messrs. Salbach.

Grandiflorus Vestris.—Salmon, with small, blood-red spots on the falls. Entered by Messrs. P. Byvoet and Co.

Trial Garden Awards.

Ariadne.—Geranium-red, with scarlet, white-edged blotches. Entered by Messrs. P. Byvoet and Co.

Carolus Clusius.—Soft cattleya-pink. Entered by Messrs. K. Velthuys and Co.

Captain Boyton.—Violet, with purple-violet blotches on the falls.

Doris.—Apricot, with carmine stripe. Entered by Messrs. Alkemade.

Harmony.—Very soft pink, with a cream, carmine-feathered blotch. Entered by Messrs. Alkemade.

Ismene.—Violet-white, with a cream blotch; spike broad. Entered by Messrs. P. Byvoet and Co.

Mont Cenis.—Pure white. Entered by Messrs. Alkemade.

Mrs. Alice Amos.—White, with a creamy blotch. Entered by Messrs. Alkemade.

Ne Plus Ultra.—Flowers pure white, in a big spike. Entered by Messrs. Alkemade.

Rheinweiss.—Soft sulphur-yellow, with a butter-yellow blotch. Entered by Messrs. P. Byvoet and Co.

Salvation Rosa.—Soft strawberry-pink, with a carmine blotch on the falls; spike slender. Entered by Messrs. P. Byvoet and Co.

The Queen.—Satin-rose, with a small, scarlet blotch. Entered by Messrs. Alkemade.

Wagner.—Soft salmon-orange, with a cream-coloured blotch. Entered by Messrs. Alkemade.

Phantasy (primulinus).—Strawberry-pink. Entered by Messrs. P. Byvoet and Co., as also were the following primulinus varieties.

Hildegonde.—Salmon, with carmine stripes on the cream-coloured falls.

Leda.—Soft apricot, shaded yellow.

Lilac Favourite.—Soft cattleya-pink, with a soft yellow blotch.

Grandiflorus Rose d'Amour.—Clear salmon-pink, shaded.

Obituary.

John Cowan.—The passing of Mr. John Cowan, of Liverpool, on October 1, at the ripe age of eighty-seven, brought to an end the last of those great Orchid importers who flourished during a past generation, and who laid the foundations of the present day important industry. Few of to-day's Orchid enthusiasts will remember his great activities when the famed Vineyard Nurseries, at Garston, near Liverpool, was a huge emporium for receiving and distributing Orchids collected from all parts of the world. His dinamic energy and dauntless will carried him through many difficult and troublesome periods. Nothing was too big for him to tackle, from a ship-load of Orchids arriving in dock to the biggest private collection to be catalogued and disposed of in a couple of weeks! Such colossal courage as he often exhibited in these adventures deserved better returns, but, few men can have toiled so hard and "caught so little." Being a merchant rather than a cultivator, he found himself scarcely equipped for the change of taste when hybrid Orchids began to appear frequently and imported plants became less and less in demand. He retired gracefully from the new scene of action leaving two of his sons to carry on the name in another and more up-to-date sphere—now at Southgate. A great personality, but rather impatient, and sometimes a trifle irritable, not suffering fools gladly—John Cowan, nevertheless, was not an unreasonable chief. Always a furious worker himself, it was impossible for his staff to be idle, and none of the young men (the writer among them) who passed through his hands during his busy days, will have regretted their experience. His sympathetic nature was often imposed upon; probably his benevolent appearance and leonine head exposed him to that sort of thing! He will be remembered with affection by those who knew him personally, and with appreciation by those who remember to give him credit for all he did to popularise Orchids. It is good to know that the latter years of his life were spent peacefully at Gateacre, where, up to the last, he took a delight in keeping himself acquainted with what was going on in the Orchid world. *H. H. S.*

Geardus van Noordt.—Horticultural papers in Holland give news of the death, on October 5, at the age of sixty-nine years, of Herr Geardus van Noordt, one of the best-known nurserymen of Boskoop, Holland. For many years he was president of the Boskoop branch of the Dutch Horticultural Society, and took an active part in its work.

Emile Rosette.—We regret to learn of the recent death of a well-known French Chrysanthemum grower, M. Emile Rosette, of Caen. He was passionately devoted to Chrysanthemums, and had played, for the past thirty years, a large part in the development and improvement of the flower. He was considered one of the best cultivators in the country, and some of the exhibits he sent to the shows in Paris created quite a sensation. He was a Vice-President of the French Chrysanthemum Society, and had received the cross of the grade of Officer in the Order of "Mérite Agricole."

ANSWERS TO CORRESPONDENTS.

Iris Diseased.—*A. J. W.* The Iris rhizome has been attacked by the bacterial soft rot disease. Numerous larvae of one of the lesser Narcissus flies, Eumerus species, were present, but are probably secondary agents concerned in the decomposition of the tissues. Remove and burn all decaying portions and dress the beds with superphosphate of lime. The plants have received a check and this has opened the way to infection.

Lilium speciosum Bulbs after Flowering.—*W. H. D.* If the bulbs of Lilium speciosum are well established in pots, with plenty of healthy roots, the best plan is to leave them undisturbed until they commence to grow next year, when several inches of the top soil may be removed, and a topdressing of good loam, leaf-soil and sand given. If the bulbs are at present in small pots, it may be necessary, when they start to grow, to give them a shift into larger-sized pots. Remember that this is a stem-rooting Lily, and, therefore, fairly large, deep pots are necessary to allow plenty of room for the stem roots. They may be kept all the winter in a cold frame, or they may be stood out-of-doors, at the foot of a warm wall, plunged to the rim in ashes, or leaf-soil; in any case the pots should be covered over the top with several inches of clean leaf-soil, or fibre, or well weathered ashes will answer the purpose. If the plants are in poor condition, with very few good roots, they should be turned out and cleaned, afterwards repotting them in fresh compost and wintering them in the same way as advised for well established plants.

Rose Bush Unhealthy.—*H. K.* We were unable to find on the Rose bush any other diseases than mildew and rust, which you mention, nor any disease to which is attributable the collapse of the plant. The cause of the trouble appears to be traceable to the root system, which is quite inadequate for the task of supplying sufficient water requirements to such a large plant. A heavy mulching in spring should be adopted to induce the formation of fibrous roots, of which the plant submitted was almost devoid.

Single Dahlias.—*L. S.* The larger of the two seedling Dahlias is of good colour but appears to be rather floppy, although it may not be so when freshly cut; we liked No. 2 best because of its brilliant colour and good substance. You should have them tested in a large collection, as it is only by comparing habit, freedom of flowering, and length of stem that a proper estimate of their usefulness can be made.

Water Grass on Lawns.—*G. H. H.* If you are desirous of eradicating the water grass on your lawn, we recommend removing the affected parts and relaying with a turf consistent in texture with the lawn grass. If the desired quality of turf cannot be obtained in your district, we further recommend removing the patches, making up with a good loam, and incorporating a quantity of well-decayed farmyard manure, and sowing down immediately with a good mixture of grass seeds (excluding Rye grass). The sowing should give you every satisfaction and may prove to be the more economical method.

Communications Received.—H. J. C.—M. W.—G. S.—F. R.—I. R.—G.—A. T. W.—H. M.—F. J. C.—A. H. D.—G. P.—F. B.—M. A. N.—A. F. L.—H. D. B.

MARKETS.

COVENT GARDEN, Tuesday, October 15, 1929.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.... ...	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	30 0-36 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	18 0-24 0
Crotons, per doz.	30 0-45 0
Cyrtomiums ...	10 0-12 0
Erica gracilis, per doz. ...	24 0-30 0
—nivalis, per doz.... ...	24 0-36 0
—the above in 60's, per doz.	12 0-15 0
—the above in thumbs, per doz. ...	8 0—9 0
Marguerites, white, per doz.... ...	15 0-18 0
Nephrolepis, in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's per tray of 15 ...	2 6—3 0
Solanums, per doz. ...	15 0-18 0
—60's, per doz.	9 0-10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Acacia (Mimosa), per bun. ...	— 1 6
Adiantum decorum, doz. bun.	8 0—9 0
—cuneatum, per doz. bun. ...	7 0—8 0
Arums (Richardias), per doz. blooms	4 0—8 0
Asparagus, plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „ ...	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 3—1 6
—short „ ...	0 6—0 9
Carnations, per doz. blooms...	2 6—4 6
Chrysanthemums, bronze, per doz. blooms...	1 6—4 0
—white, per doz. blooms ...	1 6—5 0
—yellow, per doz. blooms...	2 0—5 0
—pink, per doz. blooms ...	2 6—5 0
—bronze, sprays, per doz. bun.	6 0-15 0
—white, sprays, per doz. bun.	6 0-15 0
—yellow, sprays, per doz. bun.	9 0-12 0
—pink, sprays, per doz. bun.	8 0-12 0
—large specimen blooms, per doz.	10 0-15 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0-12 0
Foliage—	
Ampelopsis leaves, per doz. bun....	4 0—5 0
Hardy foliage, in variety, per doz. bun.	4 0-12 0
Forget-me-nots, per doz. bun.	9 0-10 0
Heather, white, per doz. bun.	— 12 0
Lilium longiflorum, long, per bun. ...	— 3 0
— — short, per doz. blooms	3 0—3 6
—auratum, per doz. blooms .	4 0—6 0
Lily-of-the-Valley, per doz. bun.	24 0-30 0
Marigolds, per doz. bun. ...	1 6—2 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0-42 0
Physalis, per doz. bun. ...	12 0-18 0
Roses, per doz. blooms—	
—Columbia ...	2 6—3 6
—Richmond ...	2 0—3 6
—Yellow ...	2 0—3 6
—Molly Crawford	1 6—2 6
—Mad. Butterfly	2 0—3 6
Scabiosa caucasica, per doz. bun. ...	3 0—5 0
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	5 0—6 0
—white, per doz. bun.... ...	4 0—6 0
—yellow, per doz. bun. ...	5 0—6 0
Stocks, double white, per doz. bun.... ...	4 0—6 0
Violets, single, per doz. bun.	2 6—4 0

Remarks.—The general conditions have shown some improvement during the past week. Carnations have realised better prices, also Chrysanthemums, especially good spray white. Among disbudded varieties, medium-size blooms of Bronze Alcalde and Almirante are most prominent; more blooms of Cranford Pink, Uxbridge Pink and Profusion are now arriving in good condition, and exhibition blooms have increased in quantity, the principal sorts being N. Davis, Edward Page, Yellow Edward Page and In Memoriam. More Lily-of-the-Valley has been on sale, including small consignments from Holland. Chrysanthemums and Gladioli are also arriving from this quarter in a sound condition, but Gladioli are now practically finished for this season. Roses are still on offer in very fine condition and prices remain steady. Arums (Richardias) show some improvement in quality, but arrivals are still very erratic. Larger consignments of flowers are now coming to hand from Cornwall, and include some very fine single Anemones, Violets, Forget-me-nots and spray Chrysanthemums. Small consignments of blue Cornflowers, Scabiosa caucasica and Marigolds are on sale from home-growers. All Asters are practically over for this season. There is a good supply of such foliage as Asparagus plumosus, A. Sprengeri and Maidenhair Fern, but it is somewhat varied in quality. Smilax is arriving from Guernsey in a sound condition, and there is also a good selection among hardy foliage, good-coloured Oak being most in demand at present. In the pot plant department some very fine Cyclamens are now on offer in 32's, 48's and 60's. Ericas and Chrysanthemums in pots are also more plentiful, and the usual Palms and Ferns are now receiving more attention.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Cox's Orange Pippin, tray	4 0—8 0
—½-bushel case	6 0-12 6
—James Grieve, per tray ...	— 4 0
—Worcester Pearmain, per bushel case...	10 0-14 0
per ½-bushel...	3 0—6 0
—Bramley's ...	4 0—8 0
—Derby ...	3 0—6 0
—Jonathan ...	12 0-13 0
—Charles Ross, per tray ...	6 0—8 0
—per ½-tray ...	3 0—4 0
—Rival, per tray	4 0—6 0
—per ½-tray ...	3 0—4 0
—Warner's King, per bushel ...	4 0—7 6
—Nova Scotian, Cox's Orange Pippin, ½-barrel	20 0-30 0
Bananas, per bun.... ...	11 0-19 0
Grapes, English—	
—Alicante ...	1 0—2 6
—Gros Colmar	1 6—3 0
—Muscat of Alexandria ...	2 0—5 0
—Canon Hall...	2 0—6 0
—Black Hamburgh, per lb.	1 0—1 6
Grape Fruits ...	— 35 0
Lemons, per case—	
—Messina ...	14 0-25 0
—Naples ...	24 0-35 0
Melons, each ...	1 6—4 0
Nectarines, per doz.... ...	4 0-18 0
Nuts, Cob, per lb.	0 6-0 6½
Oranges—	
—Cape Navels, per case ...	18 0-21 0
—Valencia ...	12 0-15 0
—Brazilian ...	12 0-14 0
Peaches, per doz.... ...	6 0-18 0
Pears, English—	
—Pitmaston Duchess ...	5 0—7 0
—Buerré Hardy, per ½-sieve ...	4 0-10 0
—Comice, per doz.... ...	2 0—6 0
—Fertility ...	3 6—4 0
—Conference, per ½-sieve ...	3 6—6 0
—Californian—	
—Buerré Hardy	20 0-22 6
—Comice, per ½-case... ...	12 0-14 0
Pineapples, case	21 0-36 0
Plums—	
—Bullace, per ½-sieve ...	— 6 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, French, per lb. ...	0 4—1 0
—Guernsey, per lb.	0 4—1 0
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-sieve ...	3 0—5 0
Cabbage, per doz.... ...	1 6—2 6
Carrots, per ½-bag, washed	4 0—6 0
Cauliflowers, flat, per doz. ...	3 0—6 0
Endive, French, per crate, 18's and 24's ...	5 0—6 0
—Batavia, per crate ...	4 0—6 0
Lettuce, Cabbage, 18's, 24's ...	3 0—4 6
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	1 6—2 0
—broilers ...	1 6—2 0
—field, per lb.	0 6—1 0
Parsnips, per cwt. ...	4 0—5 0
Peas, bushel ...	14 0-18 0
Potatos, cwt ...	3 0—6 0
Tomatos, English, per box of 12 lbs.—	
—pink... ...	3 0—6 0
—pink and white	3 0—6 0
—white ...	2 0—3 6
—blue... ...	2 0—3 6
—Guernsey ...	3 0—3 6
—Jersey ...	2 6—3 0
—Dutch, per tray, 28 lbs. .	3 6—4 0
Turnips, per doz. bun.... ...	4 0—6 0

Remarks.—There has been some slackening in the general inquiry in most departments and trade, on the whole, is not good. In the hothouse fruit section there is some congestion of produce, and prices are on the low side, particularly for Grapes. There are not so many English Apples available at the moment, and Worcester Pearmain is getting to the end of its season. Cox's Orange Pippin shows a gradual increase in supply, and prices are fairly good. Large cooking Apples are not plentiful, but even so, there are few high prices being realised. Some good Pears are being marketed just now, but with such excellent Doyenné du Comice and Beurré Hardy Pears from California, buyers are not much interested in the English fruits. Mushrooms are plentiful and cheap, the recent rains having encouraged the production of field Mushrooms, which are coming along in heavy supplies. The past week has seen a slump in the values of forced Beans, owing to increased supplies of Peas and Runner Beans. Green vegetables, generally, are selling but slowly and prices cannot be termed good. English Tomatos have shown a shade of improvement in prices, owing to a slight reduction in supplies, and even outdoor Jersey Tomatos, if of good quality, are realising rather more money. The Cucumber trade is firm, with little variation in prices. There is some slight improvement in the Potato market, and quotations are inclined to harden.

GLASGOW.

Characterised by a dull time early in the week, the cut flower market experienced a sharp advance in prices of Chrysanthemums later, and at the close advances ranging from thirty-three to fifty per cent. were recorded on the previous week's quotations. Disbudded blooms of Cranford Yellow were worth from 1s. 6d. to 2s. 9d. for 6's.; Pink Consul, 2s. to 2s. 6d.; Bronze Consul, 1s. 6d. to 1s. 9d.; Almirante, 1s. 4d. to 1s. 9d.; Le Pactole, 1s. 3d. to 1s. 8d.; Debutante and Holicot Yellow, 1s. 3d. to 1s. 6d.; Sanctity and Holicot Bronze, 1s. to 1s. 6d.; Dolores, 10d. to 1s. 3d.; sprays, 3d. to 6d.; and large bunches, 6d. to 10d. each. Carnations sold at from 2s. 6d. to 4s. per dozen; pink Roses, 2s. to 3s. 6d.; red, 1s. to 2s. 6d.; Richardias, 3s. to 4s. per bunch; Michaelmas Daisies, 4d. to 1s. 6d.; Calendula, 2d.; Ruscus, 12s. 6d. per pad; Solanums, 14s.; Chilis, 7s.; Smilax, 1s. and 2s.; and Asparagus, 3d. to 1s. 3d.; trails, 1s. 6d. to 2s. 6d.

Imports of American Apples which are arriving in the Clyde in good condition made the following prices:—McIntosh Red, 16s. to 20s. per case; Jonathan, 14s. to 17s. 6d.; David and Grimes Golden, 14s. to 15s.; Nova Scotia Wealthy, 25s. to 30s. per barrel; Gravenstein, 25s. to 26s.; and King of the Pippins 30s. to 33s. Doyenné du Comice Pears made 27s. per case; Winter Nelis, 26s., and Beurré Hardy, 25s. to 30s.; Scotch Burnett Plums sold at 2d. to 3d. per lb.; Damsons, 4d. to 5d.; Blackberries, 5d. to 6d.; Cranberries, 6d.; Peaches (Italian), 8s. per package; Pineapples, 5s. 3d. each; home-grown Grapes, Alicante, 2s. 6d. per lb.; Black Hamburgh, 2s.; Gros Colmar, 3s. 6d.; and Muscats, 4s. 6d.

Tomatos fluctuated between 6d. and 9d. per lb.; Cucumbers, 3s. to 6s. per doz.; Cauliflowers, 3s. to 7s.; Lettuces, 2s. to 2s. 3d. per box (15's and 18's), and Mushrooms, 3s. to 3s. 6d. per lb.

WEATHER IN SEPTEMBER.

Before the end of August the drought had returned, and September, to within three days of its close, was mainly a fine, dry and warm month, with an unusual prevalence of light sea breezes. But for a valuable heavy fall of rain—over an inch—during the night of 28th to 29th, it would have been much the driest month so far, in 1929. Even so, measurable rain fell on only six days, or nine fewer than the average number; and the total quantity did not quite equal two inches, which implies a deficiency of 1½ inch. The ground water level became exceedingly low. The mean temperature was 57·8°, or 2·5° above the average. The duration of sunshine amounted to 157 hours, or to 17½ hours more than the normal. The afternoons yielded 22 more sunny hours than the forenoons. The great bulk of the month's small rainfall fell during the early mornings—before 9 a.m. Gales were restricted to the 20th and 21st, and moderately high winds to the 19th and 22nd; all other parts of the month were remarkably calm. Several early morning fogs were reported, but none between 9 a.m. and sunset. Only one, very slight, thunderstorm occurred (on the 12th). No trace of frost was recorded. *Joseph Baxendell, The Fernley Observatory*, Southport.

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THE Gardeners' Chronicle

No. 2235.—*SATURDAY, OCTOBER* 26, 1929.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 47·9°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, October 23, 10 a.m. (Greenwich time). Bar. 29·8. Temp. 52°. Weather, Overcast.

Nature Reserves.

The Conference recently held at Manchester on the preservation of the countryside is doing admirable work in keeping before the public the need for active measures if the beauty of rural England is to be maintained. No country in the world is more beautiful, no people in the world is more possessed with a feeling for natural beauty, and therefore it should prove by no means impossible to create and foster a public attitude toward the countryside which would make its desecration impossible. We are glad to learn, from the stimulating address which he gave at the Conference, that Lord Grey of Falloden holds this view fervently. He points out that public opinion already upholds the sanctity of flowers in our public parks. The high standard which parks-gardening has reached is appreciated by all classes of the community and by none more than by that which is commonly called the working class. In like manner, Lord Grey hopes, and we agree fully with him, that a deep and strong respect for the beauty of rural England may be quickened in the general mind. That it exists already —overlaid it may be by indifference due to unfamiliarity—is certain. The cottage gardens of England attest it; all that is needed is a little education—in the literal sence of the word—for the latent to be converted into a patent appreciation. Municipalities have in the past been much to blame in sanctioning and consecrating ugliness in buildings, in alignment of streets and so forth. But this remissness is now of the past, and towns are beginning to vie with one another in beautifying themselves. Our seaside resorts—of the east coast, Scarborough for instance, of the west coast, as Southport may testify, and of the south coast, as exemplified by Eastbourne—begin to be more plentifully and beautifully supplied with gardens than are any other seaside resorts anywhere. A visit to any of these places or, for that matter, to Kew, on Saturday afternoon, will suffice to show how widespread and intense is the feeling for the beauty of gardens. Something more—indeed much more—might, of course, be done to foster this feeling, and that without any sentimental mawkishness. Our public schools might do much more to spread a discriminating love of natural beauty among the boys. It should be regarded at least as disgraceful to be ignorant of the names and peculiarities of our common trees as to be ignorant of the tenses of *amo*. Yet, although a good deal of science is taught in our public schools, and although in some Nature study is encouraged, that study is not, as, of course, it should be in a really civilised state, universally followed. To an even more marked degree neglect of the study of living things and the countryside which supports them is common in our secondary schools, where sciences—made arid by the classroom and laboratory—are badly, or, at all events, stuffily pursued. Of the people so deprived of one of the chief pleasures of life—the enjoyment of rural beauty—some come up to Universities and in fulness of time go down from them without having their attention directed to this serious omission in their education. Naturally they were busy with other things, such as careers, and games and books, and human intercourse; all the more reason then that at some time or other the rising generation should be reminded of their increasing urbanisation and of the disabilities which attend thereon. Lord Grey, in pleading for the education of public taste in rural things, makes a number of useful suggestions; the planting of suitable flowering and other trees in the country—the careless tyranny of the Elm is too strong in England—and the clipping of hedgerows so as to leave at intervals the Thorn or other plant to grow as it will. The ruthless rooting up of wild flowers is, of course, to be deplored; but, except where hawking is concerned, it comes from an ill-balanced appreciation of objects sought after and would soon correct itself when knowledge exercised its restraining power. Given wise leadership, ugliness, which until recently was accepted as insuperable by high industrialists, will be exorcised, and the natural beauty of the countryside of these islands, which has given solace and joy to countless generations in the past, will be preserved and enhanced to the benefit of the health and happiness of the generations yet to come.

Retirement of Mr. Charles H. Wright, A.L.S.—After forty-five years' service in the Herbarium of the Royal Botanic Gardens, Kew—commencing on September 1, 1884, when he came from the Herbarium and Library of the Oxford Botanic Garden—Mr. C. H. Wright has retired under the age limit. The *Kew Bulletin* records that among his many activities during his long period of service at Kew, one of the most important was in connection with the building of the new wing of the Herbarium. Mr. Wright was assigned the task of rearranging the collection and organising the whole of the moving over of the spceimens and arranging them in the new wing—a task for which, by reason of his well-known accuracy and mastery of method, he was peculiarly fitted. For many years, all the detail work in connection with the receipt and despatch of specimens had been in his hands, and his knowledge of the history of the Herbarium collections has enabled him to render very valuable services to Kew. Another important piece of work which he has carried out has been the reading of the proofs of the African Floras—a task needing meticulous accuracy and attention to detail. In addition to these many duties he has been able to carry out a considerable amount of systematic research-work. His loss to Kew will be felt very greatly, since for many years past he has been in charge of the Palms and Petaloid Monocotyledons, and the Ferns and Mosses. As specialists on the Cryptogams are now few in number, it will not be easy to find anyone to take Mr. Wright's place in this particular and very important field. In the year 1896 he was awarded the distinction of the Associateship of the Linnean Society. He leaves Kew with the best wishes of all his colleagues that he may fully enjoy the leisure of his retirement. A portrait and appreciation of Mr. C. H. Wright appeared in *The Gardeners' Chronicle* of July 16, 1927.

The King's Gift to the Royal Gardeners' Orphan Fund.—So that this deserving gardening charity should not suffer through the abandonment of the Sandringham Horticultural Society's Show on account of the King's illness, His Majesty commanded that a donation of £15 be sent to the R.G.O.F. Needless to state, the King's thought for the orphans has been immensely appreciated by the Fund.

Imperial Fruit Show.—We learn, at the time of going to press, that preparations for the ninth Imperial Fruit Show, which opens at the end of the current week, are complete. The show, which has been staged in Bingley Hall, Birmingham, covers a floor area exceeding 60,000 square feet, and will remain open to the public until Saturday, November 2. In the Empire Marketing Board's section are representative exhibits of fruits of the Home Country, Canada, Australia, New Zealand, South Africa, Malaya and the West Indian Colonies. The Ministry of Agriculture is responsible for demonstrations of packing and grading fruits for market by means of the latest machines, and featuring the new National Mark for home-grown produce, while it is estimated that at least three thousand packages of fruits are displayed in the various competitive classes, for which £1,500 in cash, cups, trophies, etc., is offered. The research stations of Long Ashton and East Malling are represented; there is a window-dressing competition; an ideal fruit shop, and a "Palace of Beauty." On Wednesday, October 30, there will be a conference organised on a national basis for retail fruiterers, who will be widely represented, while on the following day an invitation luncheon and conference for fruit-growers has been arranged. During this conference a number of films dealing with the fruit industry will be shown. Each visitor to the fruit show will be presented with a free sample of Empire fruit, either Apples, Oranges, Grape Fruit, Limes, or canned fruits, and this year a proportion of all growers' exhibits staged will be sold to the visiting public in small quantities at normal prices. The railway companies and the Midland Red Motor services are co-operating in the matter of special excursions and cheap return tickets to the Imperial Fruit Show.

September Rainfall.—The British Rainfall Organisation (Air Ministry) informs us that it is now possible to state that the rainfall over the British Isles as a whole during September, 1929, was just less than half the usual amount. During the past sixty years there have been four drier Septembers, of which only those of 1907 and 1910 were appreciably drier, and those of 1894 and 1895 were slightly drier. The drought was most intense in the south of England, in the south-east of Scotland, and in the neighbourhood of Dublin, where the total fall amounted to less than a quarter of the average. In parts of Surrey, Hertfordshire and Buckinghamshire rain fell only on the last two days of the month. The total rainfall recorded over the

British Isles up to the end of September this year was less than that of any similar period in the last sixty years, although there was very little more in 1870, 1887 and 1921. Over England and Wales alone, January to September, 1929, was drier than any similar period in the past sixty years, the general fall being 15·0 inches compared with 16·7 inches in 1870, 17·0 inches in 1921, and 17·4 inches in 1887. In both 1887 and 1921 the last three months of the year were dry, so that it is by no means certain yet that 1929 will rank as the driest year on record. The relatively wettest parts of England and Wales were the Devon-Cornwall peninsula, western Wales and the English Lake District, where the rainfall of the nine months, January to September, 1929, was about three-quarters of the average amount. Rather less than half the average was recorded in the neighbourhood of Margate and Skegness, and over a large area stretching from Woburn in Bedfordshire to Southampton. At Oxford, the total rainfall (44 per cent. of the average) was only about 7·5 inches, or 1·5 inch less than that recorded in the previous driest group of nine months during the past sixty years, viz., February to October, 1921.

Successful Peach Culture at Teston.—Our veteran friend and correspondent, Mr. George Woodward, of Barham Court, Teston, Maidstone, is well-known as a successful cultivator of fruit, and as a particularly successful grower of Peaches. These last he grows for market, and during the present season has sent to Covent Garden no fewer than 16,161 fruits, and of this number only 3,000 were grown under glass. This has, of course, been a good Peach year, but Mr. John Poupart, the salesman, assures us that in his long experience he has never handled such splendid fruits—they were triumphs of skilful cultivation.

Progress of the Balfour Forest in Palestine.—At a meeting of the Jewish National Fund, held at the Mansion House recently, Lord Melchett referred to the progress that has been made in the planting of the Balfour Forest on the hills of Judea. He stated that two years ago 57,000 trees were planted, and last year 151,000 were planted, and it is hoped that within the next few years the work would be completed, greatly to the advantage of the country and the climate.

Manchester Exhibitions.—The Royal Botanical and Horticultural Society of Manchester and the Northern Counties will hold a Chrysanthemum show in the Town Hall, Manchester, on November 12 and 13, when thirty-four classes will be arranged and handsome prizes, including Cups and Gold, Silver-gilt and Silver Medals, offered. The Schedule of the Spring Show, to be held in the Town Hall, on May 6 and 7, 1930, has been issued, and this contains forty-two classes, in which the sum of £250 is offered as cash prizes, in addition to Gold, Silver-gilt and Silver Medals. The Secretary is Mr. Arthur Eastwood, 59, Ennismore Street, Burnley.

Apple from an Australian "Pip."—Writing from Orton Hall, Peterborough, the Marquis of Huntly states:—"In 1887, my brother, Granville Gordon, took a fancy to some Australian Apples that had been imported. Seedlings were raised from the pips, and one was planted in the garden here. The tree, now forty-one years old, has been a luxuriant grower and good bearer, and its height is about twenty-five feet. This week (October 17) we have gathered 4,015 Apples from it, all of good and average size, entirely free from maggots and disease. This appears to be an exceptional record!"

Historic Headquarters of the French Ministry of Agriculture.—The French Ministry of Agriculture is housed in a building of considerable historic interest and architectural beauty, namely, the mansion in the Faubourg St. Germain, formerly known as the Hôtel de Villeroy. Our French contemporary, *La Vie a La Campagne*, in its October issue, gives some interesting photographs and details of the house, which was originally erected at considerable cost, in 1720, by the Baron de Presles, for his mistress, Charlotte Desmares. It was sold in 1746 to the Marquis de Villeroy, and, later, changed hands several times, becoming the headquarters of the Ministry of Agriculture in 1881. Many of the interior decorations of the eighteenth century have been retained, and the lofty salons with their handsome tapestries and hangings are eminently suited for the receptions which the Minister and Madame Hennessy hold from time to time. The garden is very much smaller now than when the house was first built, and its style is completely changed. It was originally laid out in the formal style prevailing at the beginning of the eighteenth century, but at various later periods alterations were made, Cedars and other large trees planted, and in the reign of the Emperor Napoleon III it was completely re-arranged and laid out afresh by Barillet-Deschamps, a former gardener of the Bordeaux gardens, who was promoted to be the favourite garden-designer of the Emperor.

Herr F. Kunert.—Gartendirektor F. Kunert, of Sanssouci, the famous castle near Potsdam (built by Frederick the Great), retired with a pension on October 1. He was born in 1863, in Silesia, and spent the early years of his gardening career in various private estates in that province, where many famous gardens used to be and some of which are still existing. In 1895, Herr Kunert entered the service of the former Emperor William II, and took charge of the famous Terrassen-Revier in Sanssouci, where fruits of all kinds are grown under glass. Later on he built a very fine modern range of greenhouses for Grape and Peach cultivation, as well as for stove and greenhouse plants for the decoration of the castle, etc. He became so famous as a skilful cultivator all over the country, that the Emperor appointed him as his Oberhofgärtner, and he was the recipient of many decorations from the former German Emperor and royal visitors. After the great change in 1918, Herr Kunert remained in charge of his department, and was appointed Garten Ober-Inspektor, and a few years later received the title of Garten Direktor. He has now left this position owing to the age limit, but as he enjoys good health, it seems a pity that his knowledge and great experience should remain unused. Herr Kunert is certainly one of the best plant cultivators in Germany, and his successes at Sanssouci included fruits, Orchids, Chrysanthemums, Amaryllis, Carnations, Lilies and general greenhouse and stove plants, and all were of the highest standard of quality and admired by everybody who had an opportunity of visiting his department at Sanssouci Park.

HERR F. KUNERT.

Pomological Conference in France.—The sixty-fifth Congress of the French Pomological Society took place on September 20 and 21, at Clermont-Ferrand, in the large amphitheatre of the Faculty of Letters. The first session opened at 9 a.m., with about a hundred members present, M. Castaigne, the Director of the Medical College, taking the chair in the absence of the Rector, M. Lirondelle. A number of interesting papers were read, and it was decided to hold the next Conference at Chambéry, in 1930. The close of the Conference was marked by a banquet, at which 120 guests were present, and a number of excursions were made on subsequent days to places of interest in the vicinity. The Conference had been fixed to coincide with the local horticultural exhibition, held from September 19 to 23, in the Jardin Lecocq. The Grand Prix d'Honneur was awarded to MM. Cayeux et Le Clerc, of Paris, for a splendid collection of Dahlias and Gladioli, and a second Grand Prix was won by M. Perdoux, of Bergerac (Dordogne) for a display of Grape vines in excellent condition. Groups not for competition were sent by the Luxembourg Gardens, Paris, with a fine collection of Rex Begonias and Adiantum cuneatum; and by the Syndicat des Horticulteurs et Pépiniéristes du Centre, which displayed mixed flowers, Dahlias, Roses, Carnations, etc., with a wonderful lot of Reinette du Canada Apples, of a quality never seen except in Auvergne and in certain regions of the Pyrénées Orientales, where they are produced in huge quantities.

Successful National Cactus Show in America.—Interest in Cacti and other succulent plants continues to increase in the United States, and is being fostered by the recently instituted Cactus and Succulent Society of America. This Society held its first show at the Rust Nurseries, Pasadena, California, at the end of August, and we learn that it was a great success, the exhibits being of high quality and interest and the attendance good.

R.H.S. Award of Garden Merit.—Seven plants are recorded as having received the Royal Horticultural Society's Award of Garden Merit, in Part 2. Vol. LIV, of the *Journal* of the Royal Horticultural Society (September, 1929), making a total of one-hundred-and-fourteen plants which have been so honoured. Kerria japonica was given the Award on June 7, 1928. The single form is stated to be better worth growing than the double form, which was introduced first from Japan so long ago as 1700. The single form is hardier than the double, and is quite safe out-of-doors in any ordinary soil and situation. Aster Thompsonii was given the Award on October 3, 1927; a native of the Himalayas, few herbaceous perennials have a longer season of flowering than this Aster, which produces its first blooms in July and maintains a succession of them into October. The flowers are about two inches across, and the ray florets pale blue. The type attains two feet in height, but there is a dwarfer form, equally desirable and called variety nanus, about eighteen inches high; crossed with A. Amellus by M. Frikart, A. Thompsonii produced a race of plants of good form, rather more floriferous, and with larger flowers, called A. × Frikartii, the best form being the variety Stäfa. The Award of Garden Merit was bestowed upon Astilbe simplicifolia on August 8, 1927, a plant which has received considerable notice in this journal; A. s. var. rosea was the subject of the Supplement Plate in our issue of August 24. Spiraea venusta, which received the Award also on August 8, 1927, is an herbaceous species of garden merit; it is very accommodating, for Mr. F. J. Chittenden states it will flourish in the open, sunny border (provided the soil is not too dry), in partial shade, and on the edge of the pond or bog. Its growths will attain a height of three to five feet, and are terminated in July and August with large, branching clusters of pink flowers. S. venusta is described in some works of reference under S. lobata, and is also synonymous with S. palmata, L. There is a variety of it called magnifica, with larger flowers of deeper colouring, while the flowers of variety albicans are light pink. The praises of Hypericum reptans, which was given the Award on July 4, 1927, have often been sung, for it is a highly ornamental subject for the rock garden. It forms a close mat of bright green which is studded, from August until frosts set in, with large, rich yellow flowers and almost crimson buds; it requires a moderately sheltered position to ensure it withstanding the winter, as it hails from Sikkim. The superior colouring and larger size of its flowers led to the variety of Ribes sanguineum (the Flowering Currant, so well known in English gardens) known as splendens, being selected for the Award of Garden Merit on April 4, 1928. R. s. var. splendens is as free-flowering as the type, and forms a shapely bush up to six feet in height, although it does not resent restrictive pruning. The last plant described as having received the award, on January 14, is the invaluable Viola Jersey Gem which was raised by Mr. T. A. Weston, of New Jersey, U.S.A., a not infrequent contributor to the columns of *The Gardeners' Chronicle*. Viola Jersey Gem is very popular in America, and soon gained favour upon its introduction to this country, for it is of compact, tufted habit, and very floriferous, while it produces its violet-blue flowers, of medium size, over a very long period.

Register of Growers of Certified Black Currant Bushes, 1929.—This Register, which has been issued recently by the Ministry of Agriculture and Fisheries, contains the names and addresses of growers of Black Currant bushes whose stocks have been examined during the past season by the Ministry's Inspectors, and certified as true to type and apparently free from reversion. Certification of bushes has followed the group classification adopted by the East Malling Research Station, with the exception that "Goliath" has been replaced by "Edina" as the type name of Group III. The four main groups, therefore, are I, French Black; II, Boskoop Giant; III, Edina and IV, Baldwin. Particulars of certified stocks of varieties not included in any of these groups will be found under the heading "Unclassified Varieties," at the end of the register. Except in the case of unclassified varieties, certificates do not guarantee that bushes are true to any particular variety, but where bushes have been stated by the growers to be of particular varieties included in the group types, those varietal names have been added in brackets. The certificates relate solely to the purity of the stocks and their apparent freedom from reversion at the time of inspection. They must not be regarded as guarantees of freedom from disease, although no stocks were certified which were obviously unhealthy or lacking in vigour at the time of inspection. Certificates are valid only up to April 30, 1930, and growers to whom they have been issued have given undertakings that they will be used only in connection with the bushes actually inspected and certified by the Ministry's Inspectors. Copies of the Register may be obtained upon application to the Ministry, 10, Whitehall Place, London, S.W.1.

Sterilisation by Heat of Small Quantities of Soil.—In view of the various opinions expressed in these columns recently on the question of soil sterilisation, and especially with regard to steaming versus baking, over which considerable controversy has arisen, the contribution by Dr. W. F. Bewley, Director of the Cheshunt Experimental and Research Station, to the October issue of the *Journal* of the Ministry of Agriculture, entitled "The Practical Sterilisation by Heat of Small Quantities of Soil," is of special interest. Soil sterilisation eliminates pests and diseases, and greatly increases the fertility of the soil, with the result that plants of increased vigour and health are assured. The soil is heated to a temperature of 210° to 212°F., and is maintained at that temperature for from fifteen to forty minutes, according to the type of soil and its contaminations. Dr. Bewley compromises on the question of steaming versus baking, stating: "Actually both methods are beneficial if properly conducted with due regard to the type of soil and the nature of its contaminations." Both methods increase soil fertility, and destroy obnoxious fungi and bacteria. Baking is more severe upon the soil colloids than steaming, and baked soil is more difficult to handle in potting than that which has been steamed, as it dries out more quickly and requires more attention—"many Tomato growers refuse to use it for this reason." Another risk engendered in baking the soil is that it is easy to overheat it, especially if the soil is on the dry side, with the result that it is rendered "dead" and incapable of supporting plant life; seedlings planted in such soil turn blue and hard and make poor, if any, growth. If steamed soil turns out of the steriliser like "so much thick mud," a not uncommon complaint, the method employed is wrong. Later, Dr. Bewley states his preference for steaming. Numerous devices for both baking and steaming soil, in quantities varying from half-a-ton to three tons, have been invented by nurserymen and others, and the most important of these are discussed very thoroughly by Dr. Bewley. Diagrams are given demonstrating the box method of steaming, and the Washburton Baking Apparatus, as used on Mr. G. Tabner's nursery at Timperley; the illustration of the Cheadle Royal steaming apparatus, which appeared in *The Gardeners' Chronicle* of December 22, 1928 (Vol. LXXXIV, p. 495, Fig. 221), is reproduced, and there is also an illustration of a very efficient soil-baking apparatus in use on Mr. W. Priestner's nursery at Northenden, Cheshire. The value of a particular sterilising device depends upon whether the method will provide a uniform temperature of at least 210°F. throughout the mass of soil in a reasonable time; whether it will turn the soil out in a condition suitable for plant growth; the cost of constructing and working the apparatus. In conclusion, Dr. Bewley states that steaming is, undoubtedly, the best method of sterilisation, and should be employed whenever possible; the box and grid method, fully explained in the text, and the Cheadle Royal method, are recommended, the latter being especially commendable for its ease of working. If steaming is impracticable, then baking should be considered, the apparatus recommended for this purpose being that devised by Holmes and incorporated in the Holmes' baking oven, the metal parts of which are sold by Messrs. C. P. Kinnell and Co., Ltd. Bakers of the Cheshire type have not been found to maintain a uniform heat.

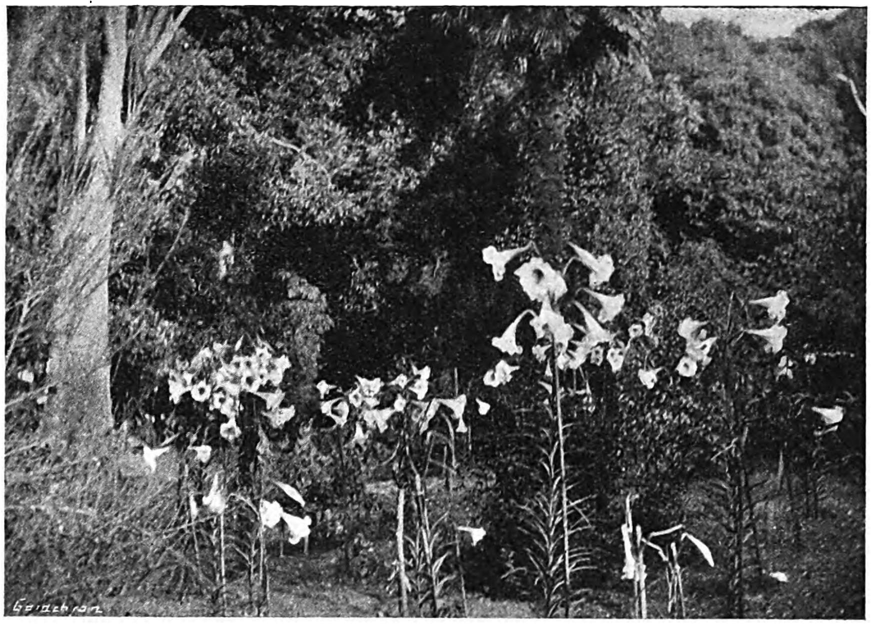

FIG. 148.—LILIUM PHILIPPINENSE VAR. FORMOSANUM AT ABBOTSBURY, WEYMOUTH.

(see p. 325.)

Appointments for the Ensuing Week.—Monday, October 28: Birmingham and Midland Counties Gardeners' Association's lecture. Tuesday, October 29: Croydon Chrysanthemum Society's Exhibition; Royal West Renfrewshire Horticultural Society's meeting. Wednesday, October 30: Eastbourne Horticultural Society's Autumn Show (two days); Guildford and District Chrysanthemum Society's Show (two days). Friday, November 1: Dundee Horticultural Society' lecture. Saturday, November 2: Leeds Paxton Society's open exhibition night.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Effects of the Past Winter.*—It is not a little remarkable that Garrya elliptica, an Oregon plant, naturally associated with Berberis aquifolium, Ribes sanguineum, Spiraea ariaefolia, and similar hardy plants should have suffered so generally; for although not killed altogether in any place from which reports were received, yet we know that it scarcely escaped with life in the immediate vicinity of London. No Spiraeas seem to have sustained material injury. The new evergreen shrub Swammerdamia antennaria, notwithstanding its Australian origin, proves as hardy as a common Laurel; nor is the Pittosporum bicolor, from the same country, much more tender. In speaking of Eucalyptus, we have already pointed out how much there is to hope from experiments with Van Diemen's Land shrubs, and these cases materially strengthen the probability. We may take this opportunity of adding that the Eucalyptis called montana, which has proved so hardy in the south of England, is not coccifera, as we suspected, but is the Van Diemen's Land radiata, as we have learned from specimens communicated by Mr. Luscombe of Combe Royal. Lastly, we have to record the unexpected fact that the Assam Tea plant is hardy. Several small plants in the garden of the Horticultural Society survived without the smallest protection; and, what is still more curious, a young plant in incipient leaf was very little damaged by the frost of April 24, which killed all the young wood of the Walnut trees. This may be taken as a further illustration of what we have said while speaking of Garrya elliptica, showing how impossible it sometimes is to judge *a priori* whether a new plant is hardy or not. It shows that the question is one that can only be answered by direct experiment.—*Gard. Chron.*, *October* 28, 1854.

Publications Received.—*The World's Grasses, their Differentiation, Distribution, Economics and Ecology*, by J. W. Bews, M.A., D.Sc., F.L.S.; pp. xii, 408, illustrated. Messrs. Longmans, Green and Co., Ltd., 39, Paternoster Row, E.C.4. Price 21s. net.—*Patio Gardens*, by Helen Morgenthau Fox; pp. xx, 228, with many illustrations. Messrs. Macmillan and Co., Ltd., London. Price 25s. net. *Journal of Forestry* (No. 4, Vol. XXIII), of the Royal English Arboricultural Society. Laughton and Co., Ltd., London. Price to non-members, 2s. 6d.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Duckyls Park, East Grinstead, Sussex.

Cypripedium Seedlings.—Where seeds of Cypripediums were sown early in the year, on the surface of the compost of older plants, and germination was successful, the seedlings should now require attention. The larger seedlings that have completed the formation of their first leaf, should be transplanted singly into very small pots, or several may be pricked out into store pots two-and-a-half inches in size, which have been prepared a few days previously and thoroughly watered, so that the moisture can be absorbed and the compost warmed through before the small plants are transplanted into it. The compost may consist of A.1. fibre and Sphagnum-moss cut moderately fine, in equal parts, for the very small plants, adding a little fibrous loam for the more advanced seedlings and incorporating a few finely crushed crocks to keep it porous. The whole should be mixed well together and pressed firmly into the pots, trimming the surface off neatly and level with the pot rim. Place the pots near the roof-glass at the warmer end of the house, and spray the plants and surroundings frequently with a fine sprayer to avoid disturbing the seedlings. Under genial and moist conditions, the plants quickly become established and should be kept growing steadily during the winter in favourable districts. Near large towns and manufacturing centres, where the light is usually very poor during the next two months, it is advisable to leave the pricking out of seedlings until early in the new year, when the increasing light should be more conducive to growth. Stronger plants that were pricked off earlier in the year, may require separating and potting singly, the size of the pots depending on the vigour of the plants. In all cases good drainage is essential to allow a free passage of water and air through the compost, which, for the tessellated section, need not contain any loam. The small plants are subject to attack by thrips, which should be kept in check by occasional fumigating, while the troublesome small black fly may be trapped by insectivorous plants, such as Pinguicula caudata, Drosera binata and D. capensis. The larvae of this fly churns up the compost and disturbs the small seedlings, often necessitating their removal to fresh compost. A few of these insectivorous plants grown among the seedling pots serve a useful purpose and many of them are attractive and interesting subjects.

Oncidiums.—Cool house Oncidiums, of the macranthum type, which have just flowered, should be given ample supplies of water at the roots each time the compost appears dry until growth is complete, when a smaller quantity will suffice, although plants of this section of Oncidium should not be kept dry at the roots over a long period at any time. Scale insects often infest these Orchids, and should be removed so soon as detected.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

Preparation for Planting.—Two of the essential conditions in the successful cultivation of hardy fruits are efficient drainage, and deep and thorough cultivation of the soil. The lack of efficient drainage is the predisposing cause of most of the fungus diseases which attack fruit trees. Chlorosis, gumming and canker in all its forms, are brought about by the enfeebled condition of the trees, caused by impaired sap supply owing to bad drainage. When the soil is water-logged the air is driven out, and the roots of trees cannot be healthy unless oxygen from the air can penetrate the soil freely. But when the soil is properly drained, the water, during heavy rains, passing to the drainage, draws the air into the soil. Land that is drained is certain to be a more healthy medium for fruit-growing than that which is undrained. Good drainage raises the temperature of the soil, by admitting warm atmospheric air, and so makes it more productive, and the fruits mature earlier and are more highly coloured. A well ventilated soil aids the useful bacteria in the preparation of plant foods; besides, drainage improves the physical condition of most soils. Where drainage, for some reason or other, is found to be impracticable, plant the trees on mounds raised slightly above the general level of the soil, and keep the surface of the mound well mulched with manure, especially in summer, so as to attract and retain the roots near the surface, for if this becomes dry in hot weather, the roots may go downwards in search of moisture, to the detriment of the trees.

The Soil.—The preparation of the soil should be taken in hand at once, so that it may have time to settle down before the actual planting takes place. It should be worked to the depth of at least two feet, the subsoil being broken up, but not brought to the surface. Where it is intended to plant a whole plot, or a complete row, the preparation may be carried out by bastard trenching the whole area. If the subsoil is of a retentive or clayey nature, bonfire-ash, road scrapings, chalk, or mortar rubble, should be incorporated freely during the process of trenching. This will help to keep it open for many years and prevent the clay ever becoming so compact again. Neither leaf-soil nor animal manure should be introduced into the soil, either now or when planting Apples, Pears, Plums or Cherries, as they cause rank growth which seldom ripens properly, and the trees would, most likely, require lifting and root-pruning after a few years. Healthy roots working actively in sufficiently fertile, yet quite firm, but porous soil, should be the aim of all growers of hardy fruits. If the soil is too rich and too loose, the natural result is displayed in the form of gross, sappy growths and few blossoms. In the case of small fruits, however, such as Gooseberries, Currants, Raspberries and Strawberries, manure should be incorporated freely in the soil to obtain the best results. If the land is under turf, the turf should be chopped up as the work proceeds and placed over the broken bottom spit, the soil from immediately beneath being moved over on top of this. Leave the surface so rough as possible to "weather" down naturally by frost, rain, and drying winds. Left in this way, it will drain better, dry quicker during a spell of fine weather in early winter or in February, and there should be plenty of friable soil on the surface to place about the roots of the trees as they are being planted.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Campanula pyramidalis.—Plants of the Chimney Campanula raised from seeds sown last spring, and intended for growing in pots to furnish the conservatory and dwelling-house next season, should be placed in their flowering pots. Receptacles seven inches in diameter are most suitable for this purpose, and the plants should do well in quite ordinary soil, provided a little bone-meal is added. After potting, they should be placed in a cold frame, plunging them in a bed of ashes well up to the rims to prevent the pots being broken by severe frost; remove the lights on all favourable occasions. Stocks of this popular Campanula may also be raised from root-cuttings.

Irises.—There are several sorts of Iris that have become popular for pot culture and among them the most favoured are I. tingitana, I. Imperator and I. praecox, the two last coming into flower about a fortnight before the Spanish Iris. I. tingitana may be had in flower early in December if required, provided the bulbs are procured at an early date. Although this Iris cannot be forced under a high temperature, bulbs potted now should flower during January. If grown in a temperature not exceeding 55°, Iris Imperator and I. praecox respond well to pot cultivation; if their flowers are required in quantity for cutting they may be grown in boxes. They should always be watered very carefully, and any attempt to force them under a high temperature will only result in failure. When potted or boxed, they should be covered with suitable material and kept in a cold frame until the receptacles are well filled with roots.

Lily-of-the-Valley.—In establishments where there is a demand for these flowers during the next few months, one has to rely on the use of retarded crowns. The number of crowns that is likely to be needed to cover a given period should be ordered from the nurseryman and arrangements made for a fortnightly dispatch of batches from the cold storage. Retarded crowns may be had in flower within a month from the time they are received. Place ten or twelve crowns in a six-inch pot, cover them carefully with a deep layer of light, fresh moss, and keep them in a dark place until the growths are about four inches in height, when they may be gradually inured to light, but, at the same time, shading the flowers from bright sunshine; if deemed necessary to hasten growth, the crowns may be subjected to a higher temperature when the latter stage of growth is reached. For later supplies, obtain good crowns which have been specially grown for forcing, and place the same number of crowns in six-inch pots, using any light, sandy soil for this purpose. The soil should be pressed firmly about the roots, and after potting, stand the receptacles in ashes in a cold frame, and afford protection from frost.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Early Vines.—Pot vines intended for starting at the end of next month or the beginning of December may now be cut back, washed and placed in a position where they may be kept quite cool and sheltered from heavy rain. Any loose surface soil should be removed and when the balls of roots have been made thoroughly moist, they may be top-dressed with good loam well enriched with bone-meal. Early permanent vines may now be pruned and cleansed and loosely tied down until started and ready for tying in position. Washing with Gishurst compound (six ounces to the gallon) should suffice if the vines are young, and if thoroughly performed there should be no necessity for the barbarous practice of divesting the rods of every piece of sound, old bark. If mealy bug has been very prevalent, it will be more difficult to deal with. In this case every piece of loose bark should be removed prior to washing the rods with Gishurst, and filling all holes with pure compound. Cleansing the vines is less difficult than cleaning old vineries, and every part of the house and walls should be scrubbed and lime-washed, and all loose mulching and soil removed aud replaced with new compost.

Succession Vineries.—In these houses the vine foliage is changing from deep green to mottled tints, indicative of ripening. The vines may receive another good washing with the hose to remove any traces of red spider, which has been prevalent. Inside borders should be watched carefully as they often become a shade too dry in the autumn after the vines have been cleared of the crop and the house thrown open. Many people think extreme dryness is favourable to the ripening of the wood, but when roots and leaves feel the lack of water, the soft, crisp feel of the latter, a true index of all being right, is substituted by a harsh texture and rapid leaf-fall, conditions not favourable to a good crop of Grapes the following season. So long as the leaves retain vitality and the house has plenty of air, no grower need be afraid of giving inside borders liberal supplies of water.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Spring Bedding.—With the approach of autumn, no time should be lost in removing the bedding plants immediately their beauty is gone, and having the beds or borders dug over for the reception of bulbs and other subjects for the decoration of the garden in spring. Apart from bulbs, which are the mainstay of spring bedding on a large scale, there are a great many valuable plants for this purpose that can be easily raised from seeds, cuttings, or divisions each year, and which add to the beauty of the spring garden, either as carpets for bulbs or as individual groups. As a carpet for Tulips, various varieties of Aubrietia are very suitable, provided the right Tulip, in the matter of colour, is selected to flower at the time when the Aubrietia is at its best. The variety of Forget-me-not known as Royal Blue is superior to any others; it is well adapted for planting in large beds or borders, and may with advantage be used as a groundwork for white Tulips; or as an effective bed if interplanted with a clear yellow Wallflower, and the outer edge planted with a free-flowering Viola, such as Ardwell Gem or Bullion. Wallflowers and Polyanthuses are always welcome either in masses by themselves, or used as a groundwork for the stronger-growing Narcissi and Tulips. Those that can allow the beds to remain longer than for the average spring bedding subjects may with advantage use some of the dwarf alpine Phloxes as carpets for choice bulbs, choosing such sorts as P. Vivid, P. Nelsonii, P. subulata, and P. divaricata; the last-named is a strong-growing species with lilac-purple flowers and is later flowering than the others. All are free in the production of bloom, and are to be recommended for this purpose. A pretty bed for early summer consists of a good strain of Iceland Poppies interplanted with blue Spanish and English Irises; such a bed gives quite a long season of bloom. There is no lack of easily propagated plants suitable for spring bedding and no end to the various floral combinations that may be employed. One of the chief points to remember is to plant so early as possible, so that both the plants and bulbs may have time to become established before severe weather sets in.

Herbaceous Borders.—Where these are to be replanted this autumn they should be gone over now and all plants carefully labelled; this saves considerable time and worry when the time comes to lift the plants preparatory to digging the borders. Plants that resent root disturbance should be marked specially, so that they may be left undisturbed.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Rhubarb.—Where the foliage has died down, clumps of Rhubarb required for forcing should be lifted in readiness for placing in the forcing house. Select sound, healthy crowns, and when placing them in the forcing house, work plenty of leaves around the roots.

Chicory.—Roots of Chicory for forcing may be lifted now, the top growths cut away, and the roots inserted in beds or boxes of light, sandy soil. They should soon break into fresh growth if afforded warmth and kept in darkness. Keep the atmosphere moist, but water the roots carefully, using tepid water only.

Onions.—The crop that has been harvested should be examined and any bulbs that appear to be decaying removed. If the bulbs have been well ripened they may now be placed in the store-room and laid on shelves or roped and hung from the rafters. It is important that the room in which Onions are wintered should be dry.

Beetroot.—Early-sown Beetroots should be lifted, cleared of their leaves, and the roots stored in sand or ashes, preferably out-of-doors. Should the weather be frosty, provide a thick covering of straw or other protective material. The roots of late-sown Beet may remain in the ground for a few weeks yet; if left throughout the winter, the roots will develop a flat, earthy flavour.

Parsley.—Now that frosts are imminent, means should be taken to protect this popular herb so that fresh supplies of leaves may be obtained over a prolonged period. Long, thin boards joined together in the shape of a Λ, form a very suitable protective covering to place over the lines at night, or mats laid on suitable supports are also admirable for this purpose.

Carrots.—Any fully-grown Carrots still in the ground should be lifted and stored in sand. If left in the ground many of the roots may crack and decay. Late-sown crops should be kept free from weeds, and the hoe worked between the lines to keep the soil surface open.

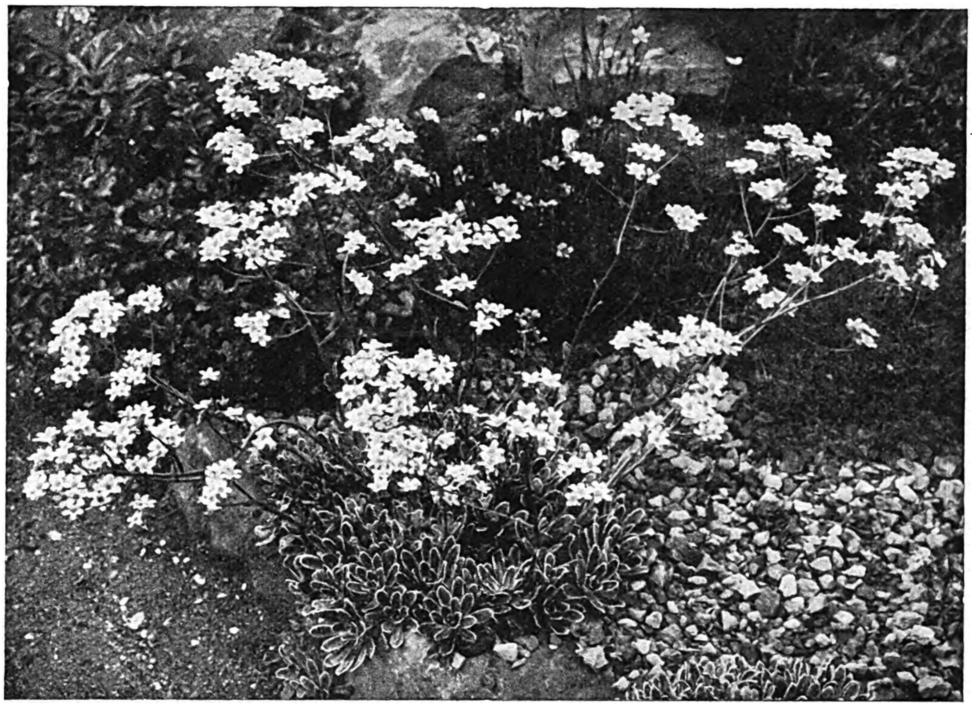

FIG. 149.—SAXIFRAGA KOLENATIANA
(see p. 322.)

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Lifting Dahlias, etc.—When cut down by frost the Dahlias should be lifted carefully and the tops cut back to nine or ten inches. Dry the tubers moderately in a warm place, and then store them in a cool, frost-proof shed, plunging them preferably in dry sand, Cocoanut fibre or similar material. All plants likely to be destroyed by frost should now be lifted and placed in frames; Lobelia cardinalis, Salvia patens, and all the best varieties of Montbretia are liable to be destroyed if left unprotected. They should be lifted and placed in frames, either in boxes of light soil or in beds. A little frost will not harm them, provided they are not allowed to become damp at any time.

Planting Small Fruits: Raspberries.—Before the ground becomes sodden, any planting of small fruits should be pushed forward. Canes of Raspberries for new plantations should be young and not too vigorous. The ground for all small fruits should be well cultivated and enriched with liberal dressings of farmyard manure well incorporated. The soil should be allowed to settle for a time before planting. Raspberries are best grown against wire fences five to six feet in height, to which the canes are fastened, but these need not be erected at the time of planting, as the young canes should be severely cut back in spring to induce strong growth the first year, on which the future success of the plot depends. Two feet is sufficient space between the plants, and the rows may be five or six feet apart, according to the variety planted. Superlative, one of the best varieties, does well at five feet, but, unfortunately, it has not a robust constitution and dies out in a few years. Baumforth's Seedling is almost as good for cropping and quality of fruits, and seems to be more lasting, but requires the greater distance. Raspberries would appear to prefer light shade and cool conditions at the roots. In exposed situations, Raspberries may be grown in clumps, four to five feet apart, the canes being arched over and tied together, forming a series of hoops. This plan has something in its favour in that the young growths are clear of the fruiting canes during the summer.

Brambles.—These are quite a profitable crop in certain seasons. They should be treated as for Raspberries, that is, they should be grown on wire fences, but require a greater distance apart, owing to the vigour they show on cultivated ground.

Loganberries.—These give the best results in the north if grown against a low wall, in a sunny aspect, treating them as for Raspberries and Brambles in all other respects.

Black Currants.—These also do well in a cool, shady place. In making a permanent row or plot, a good plan is to put in three one-year-old plants, one foot apart, in a triangle, the groups being at least five feet from centre to centre. Black Currants should be pruned hard back the first year to encourage a strong break both above and below the ground, after which they give little trouble.

Gooseberries and Red Currants.—These differ from Black Currants in that a clear stem is advisable, suckers being undesirable. If bought from a nursery, plants should be chosen with about six inches of clear stem, as if longer, the plants are liable to be blown about by the wind. Not less than five or six feet both ways should be allowed between the permanent plants, and bushes not more than three years old should be planted. Avoid deep planting, it being advantageous to keep the roots of all fruit trees and bushes near the soil surface.

ALPINE GARDEN.

SAXIFRAGA KOLENATIANA.

The Aizoon, or Encrusted Saxifrages, have provided us with many gems for the rock garden, for none of them is difficult to accommodate and all are especially valuable on account of their silver-encrusted rosettes of foliage and dainty sprays of blossom. No rock garden is complete without a selection of them, ranging from the diminutive forms of S. aizoon to the giant S. Cotyledon and much-prized S. longifolia. They are also grand subjects for pot or pan culture in the alpine house.

Whereas the majority of the members of this group of Saxifrages have white flowers, those of S. Kolenatiana (Fig. 149), which by some authorities is regarded as a variety of S. cartilaginea, are of an attractive shade of pale pink, dark red in the bud, and borne in dainty sprays on red-tinted stems. Therefore, this Saxifrage is especially worthy of a place, in a sunny position or in a rock crevice, where it will form an ever increasing mound of closely-packed, encrusted rosettes of foliage which, in winter, becomes shaded with red. *F.*

ACTINELLA SCAPOSA.

When on a visit to Kew Gardens about the end of July, I came upon this plant in bloom in the rock garden, and it appeared to me as a very desirable rock garden plant for late summer effect.

Actinella scaposa is stated to be a good perennial, but its appearance gives the impression that it would not be long-lived. However, it is worth a place for its foliage alone, for the narrow leaves, which form a close clump, are about four inches long and furnished with silvery down. The Hieracium-like flowers, which unfold from very silky-haired buds, on red-tinted stems one foot or so in height, are very striking for the golden-yellow ray florets encircle a close mass of orange disc florets, the whole being about one-and-a-quarter inch wide.

A. scaposa is a North American plant, and in English rock gardens would appear to require a fairly warm, sunny position and open, light, loamy soil; possibly, on account of its extreme downiness, it may need protection from damp, in the form of a sheet of glass overhead during the winter.

There are, apparently, one or two other Actinellas suitable for culture on the rock garden, one book of reference stating that A. grandiflora the Pigmy Sunflower, and a native of Colorado, is the best.

A. scaposa does not appear to be in general cultivation in this country, and it is not listed in any of the catalogues of the leading alpine plant specialists. I have in my possession, so one can only hope that it will become available in the future. *M. W.*

TREES AND SHRUBS.

LONICERA NITIDA.

During recent years much has been heard of Lonicera nitida, and it has for some time been quoted in quantity by nurserymen who recommend it as a hedge plant. This species is certainly very useful for such a purpose in mild localities, although the clipping that is necessary somewhat destroys its natural grace. Those who contemplate using this Honeysuckle as a hedge plant should, however, be very sure of its hardiness in their particular district, and they would be well advised to grow it for some time as a specimen shrub in their gardens before definitely deciding to use it for a hedge, especially if the area to be enclosed is of any great extent. It is really surprising that a comparatively recent introduction from China should have so quickly gained popularity as to be offered by the hundred or by the thousand.

Lonicera nitida is an evergreen, forming a dense, although graceful bush of some three or four feet high (possibly more) and as much through. The young growths are at first erect, but as they grow older they arch gracefully over and lend a weeping habit to the shrub. The small, thick, glossy, ovate or heart-shaped leaves are opposite and close together on the stems, which are purplish in the young state and turn brown and woody later. Cream-coloured flowers are produced on the leaf-axils; they are fragrant, but of no great beauty and are followed by purplish berries.

Among many other plants from China we owe this species to Mr. E. H. Wilson, who introduced it from Szechuan and Yunnan some twenty years ago. Under natural conditions it grows at altitudes between 4,500 and 7,000 feet, and although not completely hardy in exposed localities in this country, it will withstand several degrees of frost. The young shoots, however, are apt to be nipped by severe late spring frosts. Propagation may be effected by seeds if they are formed or, failing this, by cuttings of young wood, taken with a heel of the older wood and placed in slight bottom heat in late summer, or by cuttings of firm, ripened wood, simply inserted in sandy soil in frames or under hand-lights or cloches out-of-doors. *L. C.*

INDOOR PLANTS.

CALOTHAMNUS QUADRIFIDUS.

This quaint but lovely plant from west Australia was introduced so long ago as 1803, and is so distinct as to merit a place in all good collections of greenhouse plants. It attains a height of about three feet, with spreading branches; the ovate leaves possess numerous minute, glandular protuberances, imparting to them a measure of roughness, and in colour they are an attractive shade of fresh, bright green. The flowers are scarlet, axillary and solitary, each resembling a cluster of brilliant feathers.

This greenhouse evergreen shrub succeeds in a mixture of peat, loam and sand, and thrives under treatment usually afforded Callistemons and Metrosideros; it is a member of the Natural Order Myrtaceae, and is easily propagated by cuttings. C. quadrifidus is figured in *Bot. Mag.*, t. 1,506, and there is also a good illustration of it in Loddige's *Botanical Cabinet*, t. 737.

DAEDALACANTHUS NERVOSUS.

One of the finest of blue-flowered plants for a warm house, Daedalacanthus nervosus is not difficult to grow in a mixture of equal parts peat, leaf-mould and loam, with sufficient sand to ensure porosity; cuttings root readily in the spring and grow rapidly into plants of appreciable size. It is important to grow them so near the glass as possible, thus suppressing any tendency to elongated growth.

The flowers are produced in winter and early spring, at a season when they should be particularly welcome; the plants should be pruned back after flowering and, for a time, kept somewhat dry, after which they may be potted on to form good specimens for another season.

The flowers are a good bright blue, the surface of the dark green, broadly ovate leaves is somewhat wrinkled, and the average height of the plant is about two feet. This, the most popular species of a genus allied to Eranthemum was introduced from the East Indies in 1796. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

THE ARENDSII HYBRID PHLOXES.

Although introduced several years ago, the Arendsii Phloxes produced by the raiser of the grand Arendsii Astilbes, make their way slowly into favour. They are hybrids between Perry's variety of P. divaricata and P. decussata, and are of much value because of their long season of flowering, while they are useful either for the border or rock garden. Their height varies a little, but those I have grown are rather over a foot high. These hybrids have not the shapely spikes and trusses of P. decussata, but they are highly pleasing plants, with their compact habit and many blooms, which come in succession for a long time. There are now a fair number in cultivation, and were one disposed to criticise severely one would state that several of them are very much alike. Shades of lilac and blue predominate, but the range of colouring is gradually being enlarged and we shall probably have some more distinct varieties in due time. These Arendsii Phloxes grow in ordinary fertile soil, and are best, I think, in sun.

Of those with lilac or blue flowers, the following may be mentioned. Amanda, with a dark centre on lilac ground, and dwarf habit; Charlotte, which has a deep blue eye and a lavender ground—an excellent variety; Emmy, one of the tallest, and in some soils two feet high, lilac, with a deeper eye—its height of nearly two feet renders it more suitable for the border than the rock garden; Lisbeth, with white flowers, tinged with lilac on the exterior; and Bertha, which marks a break from the others, as the white blooms are striped with lilac. Inge is another variety with some distinctiveness, as the flowers are of a pleasing tone of pink; and Elisabeth is white with the outside of the petals tinged with lilac.

These Arendsii Phloxes do not create such an imposing display as the varieties of P. decussata, but they may well repay the consideration of those who are not wedded to one particular type of flower.

LYCHNIS VISCARIA VAR. SPLENDENS PLENA.

This old plant in gardens appears to fall greatly out of cultivation for a time, but every now and again fresh interest is evident in its good qualities, and it again finds favour among growers of hardy flowers. Its main drawback seems to be that it requires propagation by division or cuttings at intervals, but good plants live for many years without this, if care is taken to place some fresh soil about them. Otherwise it may be lifted and replanted a little deeper every two or three years. It is well worth even more trouble than this, as it is a very striking plant near the front of the border or in a rock garden, although I consider that the latter is hardly the place for it.

It forms low tufts of narrow leaves, from which arise stems, varying, according to the lists, from nine to twelve inches high, but, as I have found, frequently exceeding this. My plants, in good loam, generally attain fifteen to eighteen inches in stature. The stems, which require support, bear a number of very double flowers of a bright magenta-rose. The colour is not so aggressive as might be surmised from this, and is quite good.

This Lychnis is a development of the finest form of the Alpine Catchfly. It likes a good loam, and should, preferably, have a sunny position, although this is not necessary. It is easily increased by division of large plants or by cuttings. It flowers from May onwards for some time. *S. Arnott.*

CEDRONELLA CANA.

Among the by no means numerous subjects of moderate height which provide colouring for the front of the herbaceous border during the latter part of summer and in early autumn, is Cedronella cana, a handsome Labiate of rich colouring.

This relative of the so-called Balm of Gilead—C. triphylla, a sub-shrubby species from the Canary Islands, and valued for its odour—hails from New Mexico, and was introduced in 1851; it is figured in the *Bot. Mag.*, t. 4,618.

The Hoary-leaved Cedronella, as it is sometimes termed, forms a much-branched, bushy clump up to about one-and-a-half foot high, its slender, square stems being clothed with narrow and entire, small leaves, the uppermost ones being hoary, and above these are produced the densely whorled spikes of flowers, which are a rich purplish-rose, with darker calyces, and are produced very freely, the whole plant becoming a close mound of bloom. It becomes semi-shrubby at the base but, although, apparently, quite hardy, is not always long-lived; however, it may be increased quite readily by means of cuttings of the young growths. It is not particular in the matter of soil, for it flourishes in any ordinary border medium that is not of too heavy a nature.

The generic name, Cedronella, denotes "a little Cedar," in reference to the odour of C. triphylla. *Kent.*

PLANT VARIATIONS.

SPORTS, CHIMAERAS, VARIEGATION AND MUTATIONS.

Preliminary Remarks and Definitions.

The appearance of variations—commonly called sports—whether of habit, shape or colour of leaf, flower or fruit, never fails to create interest among horticulturists, botanists and scientists, and the following account of chimaeras due to hybridisation, grafting or variegation, is an attempt to explain, as simply as possible, some of the phenomena met with among plants. It is hoped that these notes may be the means of inducing others to contribute further observations on this subject. Specimens of interesting cases of sporting would be welcomed at the John Innes Horticultural Institution for comparison and for further study.

For a more technical exposition of this branch of genetical work, by various writers, the reader should consult the books and periodicals which will be mentioned at the end of this contribution.

During recent years, a large number of observations have been made by geneticists and others on the occurrence of bud variations and variegation, with the object of analysing and co-ordinating the different kinds, and of discovering, if possible, the cause and mechanism of their origin.

Both in horticultural and genetical literature, the words "sport" and "mutation" have been used loosely so as to cover the appearance of any new form, whether coming from seed, or as a bud sport directly from the plant.

It is well-known that seedlings of hybrid origin will show extreme variability, the result of recombination in all sorts of ways of the different elements of the parents, but with this type of seminal segregation the present article is not concerned.

Somatic segregation, or bud sporting, is of frequent occurrence in plants, due to some change which has taken place in the body cells of a plant, giving rise to a shoot bearing either leaves, flowers or fruits which differ from the normal. This change, by which two genetically dissimilar cells are produced as a result of cell division, may be caused by some change in the nuclear constituents, or, in the case of plants which have a periclinal structure, by somatic rearrangement of the extra nuclear constituents of the cells, like the plastids. As a rule, such examples of somatic segregation are more commonly met with in plants of hybrid origin.

Below will be found some particulars of a few plants that show somatic segregation or bud-sporting :—

Flower Sports.

Striped flowers of different colours often occur on the same plant. Most of these are of hybrid origin, and frequently give rise to whole branches of individual flowers that are self-coloured, *i.e.*, pink, red, scarlet, magenta or white, caused by a sort of somatic segregation or separating out of the various colours found on such plants.

Many cases have been recorded of a whole plant, or a single branch or bud, suddenly producing flowers different to the proper type in colour, form, size, doubleness, or other character. Half of the flower, or a single segment, sometimes changes colour. A double, yellow-flowered form of Althaea rosea (Hollyhock), turned one year into a pure white, single kind. Subsequently, some double-yellow flowers appeared in the midst of the single, white kind (*Gard. Chron.*, 1845, p. 475.)

Helianthemum vulgare var. Mrs. Earle, double red, often gives a double, yellow-flowered sport called Cumberland Belle.

Other examples are: Callistephus sinensis (China Aster) and Antirrhinum majus (striped strain); Azalea indica var. variegata, which has produced two distinct varieties viz., Gledstanesii and lateritia (*Gard. Chron.*, 1844, p. 337); Bouvardia, several varieties (see Root Sports); Camellia, many varieties; Chrysanthemums, a large number of garden varieties of which have arisen as bud sports; Cheiranthus Cheiri (Wallflower); Daboecia polifolia var. bicolor, which sometimes bears red, white, and some flowers red and white (Fig. 150); Dahlias, many of the fancy and striped varieties sport into self colours, *e.g.*, Union Jack; Dianthus (Carnations and Pinks), Gladiolus (see below), Fuchsia, Geranium pratense var. striatum, Hyacinth, Hibiscus, Myosotis alpestris (Star of Zurich and Weirleigh Surprise), Matthiola (Stock), Mirabilis, Oenothera, Petunia, Papaver orientale, P. Rhoeas, Pelargonium, Phlox, Primula sinensis, Rosa Mundi and York and Lancaster Rose, Tulip, Tagetes (French Marigold), Verbena, Vinca minor, and Viola.

In 1915 there appeared in a row of Gladiolus The Bride, a single flower-stem bearing partly red and partly white flowers. This form of Gladiolus is a white variety of G. Colvillei, a red-flowered kind, and doubtless originated as a seed or bud mutation. Gladiolus Colvillei is a hybrid between G. cardinalis and G. tristis, which has white or yellowish flowers.

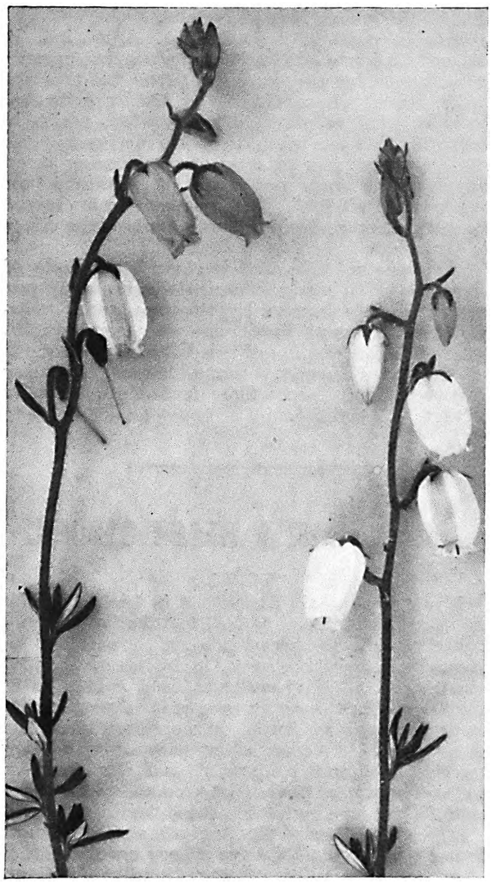

FIG. 150.—DABOECIA POLIFOLIA VAR. BICOLOR.

Impatiens Holstii, a scarlet-flowered plant, has produced branches with pink flowers and some of an intermediate colour.

Rose Sports.

Many garden varieties of Roses have originated as bud sports from other sorts. Only a few need be mentioned (fuller lists may be found in catalogues and books) :—York and Lancaster (Rosa damascena variegata); Moss Rose (Rosa centifolia muscosa) originated as a sport; sometimes a white Moss Rose will sport a pink-flowered variety of different form and destitute of mossy appendages; Madame Edouard Herriot has given several sports; Gloire de Dijon has given a pink variety (*Jnl. Royal Horticultural Society*, 1877, Vol. 4, p. 153); Queen Alexandra gave a sport called Charming Princess; Catherine Mermet, a pink variety, gave Maid of Honour, a deep pink, and Muriel Grahame, a pale pink; Dorothy Perkins gave White Dorothy and Lady Godiva, soft flesh-pink; Ophelia gave Madame Butterfly; Madame Butterfly gave Lady Sylvia, and Orleans Rose has given several colour forms.

Fruit Sports.

Peach and Nectarine.

Bud variations are frequently exhibited in the fruit. Many Peaches (Prunus Persica) have produced buds, which, when developed into branches, have yielded Nectarines (Prunus Persica var. laevis). Six named Peaches and some unnamed varieties have produced several varieties of Nectarines. Sometimes the fruit produced has been in part a Nectarine and in part a Peach. Nectarines produced in this way have reproduced themselves from seeds. Peaches have also produced Nectarines from seeds. The seeds of Nectarines occasionally produce Peaches.

The Peach Grosse Mignonne, produced at Montreuil, from a sporting branch, the Grosse Mignonne Tardive, a most excellent variety, which ripens a fortnight later than the parent plant, and is equally good. (*Gard. Chron.*, 1854, p. 821; 1852, p. 821; and 1864, p. 1,251).

Plum (Prunus domestica) and Cherry (P. Cerasus).

Mr. A. Knight stated that Yellow Magnum Bonum Plum, a tree forty years old, which had always borne ordinary fruits, produced a branch which yielded Red Magnum Bonum (*Trans. Hort. Soc.*, Vol. 2, p. 160).

Mr. Rivers, January, 1863, stated that a single tree out of 400 to 500 trees of Early Prolific, a purple kind, produced, when about ten years old, bright, yellow fruits (*Gard. Chron.*, 1863, p. 27).

Coe's Golden Drop has given, as sports, Coe's Violet and Crimson Drop. These sports are fairly constant, but occasionally revert to type.

Mr. Knight has recorded (*Trans. Hort. Soc.*, Vol. 2, p. 160) the case of a branch of a May Duke Cherry which, although certainly never grafted, always produced fruits, more oblong and ripening later than the fruits of the other branches.

Grape (Vitis vinifera).

The black or purple Frontignan Grape in one case produced during two successive years (and no doubt permanently) spurs which bore white Frontignan Grapes. In another case, on the same footstalk, the lower berries were well-coloured black Frontignan, some white and one streaked berry. In another kind, both black and amber-coloured Grapes were produced in the same cluster.

Other variations have been recorded (*Gard. Chron.*, 1852, p. 629; 1856, p. 648; 1864, p. 986; 1866, p. 970).

Gooseberry and Currants.

Dr. Lindley (*Gard. Chron.*, 1855, pp. 597, 612), describes a Gooseberry bush having four kinds of berries—hairy and red; smooth, small and red; green; yellow, tinged with buff. Mr. Laxton has seen a Red Warrington bearing both red and yellow fruits on the same branch. Gooseberry Helen Holmes has striped fruits.

The Champagne variety of Red Currant (Ribes rubrum) produced, during fourteen years, on separate branches and mingled on the same branch, berries of the red, white and Champagne kinds. (*Gard. Chron.*, 1842, p. 873; 1855, p. 646; also p. 876.)

A Red Currant bush about ten years old produced, near the summit, five white berries, and, lower down, among the red berries, one berry half red and half white. (*Gard. Chron.*, 1844, p. 87).

A white-fruited Currant has given the red-fruited kind.

PEAR AND APPLE.

Some fruit variations have been noticed on the same tree of a Pear. Several colour forms of Apple have originated as bud sports, *e.g.*, Crimson Bramley, from Bramley's Seedling, and Crimson Cox from Cox's Orange Pippin. *A. Hosking, Garden Superintendent, John Innes Horticultural Institute, Merton, Surrey.*

(*To be continued.*)

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

Is there any record of Davidia involucrata having flowered in the open in Scotland? I do not know whether the three forms of this tree are now reckoned as species or varieties; nor can I confidently affirm to which form the trees here belong. They are thirty feet high and pictures of vigorous growth, but they have never borne a single blossom, although I have seen specimens in the south of England, no larger than ours, well furnished with conspicuous white bracts and ripening plenty of seeds.

I begin to suspect that Davidia demands sunshine of a more stimulating quality than it gets here to induce it to flower. If so, we must mournfully relegate it to the same category as the Virginian Fringe Tree (Chionanthus virginica) and Clerodendron trichotomum. The Fringe Tree never gives us more than a niggardly allowance of its white panicles, and the Clerodendron, although crowded each August with ruddy bracts, delays so late in opening the flowers contained therein that we never have anything approaching the display such as has filled me with envy at Abbotsbury and similar sun-baked places. Clerodendron foetidum is even later in flowering, and it is only about once in five years that we are accorded the privilege that we are enjoying this year of admiring its corymbs of bright rose, fragrant flowers. But they are well worth waiting for.

Among herbaceous plants there are three species which excel all others in my experience for prolonged season of bloom. Here we treat Echium plantagineum as an annual, for although it is a perennial from southern Europe, it seldom survives our drenching winters in a condition to do itself justice. Sown in the open in early spring, it begins to open its long sprays of purple flowers in June, and never desists until these are quenched by frost. This plant claims ample room, growing three feet high and as much across, for it inclines to sprawl. Nothing in our ragged and untidy borders claims more frequent attention from visitors; the plants are now—in mid-October—still well set with bloom, as they have been throughout the summer.

Geum Borisii, which we are now told is not the true hybrid named by ex-King Ferdinand of Bulgaria after his grandson, the present King, opened its first flowers in May, and still carries on the long succession of rich, but soft orange discs which usually outlast Christmastide.

The third in this trio of long-flowering species is the Mexican Erigeron mucronatus, formerly known as Vittadenia triloba. It is not a fit subject for the mixed border, for the flowers which it produces in countless profusion resemble the common Daisy so nearly as to give the impression of careless weeding. Nor is it safe to admit it to the company of choice plants in the rock garden, for it spreads so fast by seeds and root runners that it soon obliterates less vigorous neighbours. But when established on some old wall it will furnish it with a cheerful drapery of blossom, lasting throughout summer and autumn. Those who have travelled by road from Cintra to Lisbon can hardly have failed to notice how gracefully the walls on either side of that road are clad with this pretty Composite, probably an escape from the famous garden at Cintra.

Now that the flame of Torch Lilies—Kniphofias—is extinguished, it is time to note what colour remains in the borders. Of Michaelmas Daisies we have discarded most varieties, because, being short-handed, it is troublesome to control their invasive habit; but Aster Amellus var. King George is indispensable with its rich purple bloom, for which a fine contrast is at hand in Rudbeckia speciosa (syn. Newmanni). One often sees this plant far short of its best, for it is a greedy feeder; but it responds to a generous diet with a crowd of golden blossom during many autumn weeks.

For intense blue, there is nothing at this season to rival, or even approach, Gentiana sino-ornata; a plant of simplest requirement, seeming to make itself at home almost anywhere, although I do not know how it may fare on chalk. Blue also, but of a subdued purplish hue, are the flowers of Aconitum Fischeri, borne in profusion during October. It never shows to greater advantage than when planted out in woodland, especially when arranged as a contrast to the autumnal carmine and saffron of Cercidiphyllum japonicum or the intense crimson of Vaccinium corymbosum. Where rabbits abound, this Aconite requires protection when first planted, for they attack it at once out of sheer cussedness; but once it is established they leave it severely alone, for, like the rest of the genus, it is poisonous.

Senecio pulcher, a native of Argentina, is more fastidious; and as it starts late into growth it is apt to be uprooted when the borders are forked over, or smothered by lustier growths. It is entitled to all kindly attention, which it repays in October when, from among its smooth, radical leaves it sends up stems bearing large flowers with magenta rays surrounding an orange-yellow disc. The colour scheme might be deemed excruciating; but somehow the effect is excellent.

No more notable addition has been made of recent years to hardy autumnal flowers than that beautiful Lily known by the ponderous polysyllables Lilium philippinense var. formosanum. There is a fine display of this Lily in the grounds of Castle Kennedy, many stems standing between four and five feet high. *Herbert Maxwell, Monreith.*

NOTES FROM A WELSH GARDEN.

EVEN if there is little that is fresh to write of autumn colour, "Old October's" kindly contributions to our year's round will not be passed unnoticed; and, in spite of gloomy predictions to the contrary, leaf colour is as brilliant as I can ever remember it. An unusually bountiful crop of fruits on berrying trees and shrubs adds a fuller, riper note of well-being to this autumnal splendour, and the weather, here, at any rate, has not been so rude as to speed unduly the passing of the most fleeting of tints.

The leaf-colour of the Azaleas, a predominant feature in a small garden where shrubs rather than trees prevail, is exceptionally brilliant. The hybrids with their glossier foliage, and a few species such as A. Vayesi, are even more gorgeous than the old yellow Azalea, which is saying much. Cotoneasters are all so good that one hesitates to make comparisons. But C. salicifolia var. floccosa, given sufficient space to display the unrivalled elegance of its slender, arching branches, must always rank very high among the evergreen kinds at this season. Moreover, the scarlet fruits which adorn its long, whip-lash twigs do not seem to be quite so irresistible to birds as do those of some others. Another shrub which more than holds its own among many rivals is Vaccinium corybosum. Its large leaves are a blend of sumptuous hues, plum-purple and bronze, crimson and orange, among which are clusters of glaucous-blue fruits the size of Currants. Indeed, most of the Vacciniums give vivid touches of colour, as do their allies, the Gaylussacias, but these latter do not seem to be so popular as they might be. Diminutive as it is and useful as carpeter for any of these, as well as Ericaceous plants, that tiny Raspberry, Rubus arcticus, glows with a blend of orange-scarlet and crimson so intense that it will make itself noticed among the bigger things.

The Exochordas seldom fail to end in a shower of most delicate yellow, and in that tint a Swedish Birch, Betula verrucosa var. dalecarlica, has been excellent. This specimen, still in its youth, was put in to provide light shade for a few Primulas and other things as well as for its own matchless grace. A more elegant and refined sapling it would not be easy to find, even among its own beautiful family, the weeping branches being very slender and daintily poised while the comparatively large leaves are lobed almost to the mid-rib. Although scarcely a dozen feet in height, the bark of this youngster is already getting white. The Judas Tree is another which turns a good clear yellow, which looks remarkably well against the sombre green of a Lawson Cypress. The former, by the way, has fruited with the greatest freedom this season, and the pods promise to ripen successfully.

That unseasonable activity which one feared would follow the break-up of the drought has apparently been warded-off by the rapid fall in temperature which accompanied the rain. But this has not been enough to deter that fine shrub, Desfontainea spinosa, from producing a good late crop of bloom. Its fiery crimson-scarlet and yellow trumpets happen to harmonise very sympathetically with the prevailing tone of the hour, as do the warm yellows of some of the shrubby Potentillas, notably P. fruticosa var. arbuscula. That useful old plant, Schizostylis coccinea, does the same thing with remarkable success, a bold mass within sight of the flaming foliage of some Aronias (Pyrus arbutifolia) and a Liquidambar being very striking. Even the beautiful variety, Mrs Hegarty, is warm enough in the tone of its glossy pink and golden stamens to be in tune with the season. But in this matter of harmonious association nothing of an herbaceous kind is quite so telling as Kniphofia Nelsonii. Several clumps of this adorable little "Poker" have been in flower since September, their finely-pointed, orange-scarlet spires being so restrained in tone, yet so richly glowing, that they seem to radiate the very essence of autumn's most precious vintage.

Viewed in the light of the above, Gentian sino-ornata always appears to me to be a little exotic. There is to my mind in this wholly admirable plant a note so unyielding in its insistance on one's attention that its success comes near to being a triumph of sheer force. It trumpets defiance at the sweetness of old associations and demands the field to itself. If it is the finest Gentian for the every-day gardener ever introduced, "close bosom-friend of the maturing sun" it can never be, since its arrogant colour must clang a discord in October's requiem. Even so, one can never be without it, but it is always possible to plant it in straight rows in a rectangular bed which it will thoroughly enjoy converting into a solid slab of its imperious blue. That, at any rate, is how a famous Sussex gardener satisfies its tempestuous spirit!

Schizocodon soldanelloides, which generally yields a few blooms at this season, has put up an exceptionally good show of its pretty, deeply-fringed, rose-pink bells. In the cool, partly-shaded spot occupied by this choice little plant is Saxifrage Fortunei, a useful late-blossomer and one by no means unattractive in leaf and bloom. There are still some sprays of rosy-white on Astilbe simplicifolia; Spiraea digitata var. nana is not less persistent with its pink crests of blossom, and Parochetus communis is dappled with hundreds of its Pea-shaped blossoms in a soft, rich blue. The only trouble with this delightful herb is that it either sulks or ramps. Moderation it disdains. But of the two forms I possess, one has flowers of a much deeper blue without the little flare of white on the upper petal, and with the parallel leaf-markings more uniform and stedfast. This one has nothing like the tremendous vigour of the other. What it lacks is a little more, when it would be a valuable acquisition where space is limited.

Heaths have had a trying season on these parched slopes, all the mid-season kinds being weak in blossom and passing off quickly. The best of the Cornish Heaths, notably E. vagans varieties kevernensis, Lyonesse and Mrs. D. F. Maxwell, have fared better, and some plants of the E. Tetralix class, being in moister soil, have flowered abundantly since June. The excellent E. T. var. mollis and E. hybrida var. H. Maxwell are among these, the latter being much like the older E. Watsonii. E. ciliaris was killed to the base last winter, and did not recover soon enough to bloom successfully, but it says much for that fine shrub, Daboecia polifolia, that, although all varieties had to be cut back in spring to the ground level, the loss was so quickly made good that the plants have flowered well. A group of the typical D. polifolia with large, well-rounded bells of a gentle lavender, has been delightful enough to impress upon one the fact that we are sometimes too apt to allow colour forms to supercede the type. Mr. Ingwersen, who sent me these plants, tells me that they are of an Irish strain. Erica ciliaris var. Maweana is a late blossomer of exceptional quality and distinction, and at this season the rosy-pink flowers on the soft, moss-green foliage of E. Williamsii are always pleasing. Some time ago I alluded in these columns to a late-flowering form of Calluna vulgaris which I brought from southern France, where it flowers all the winter. This is now in its third season, and although one fully expected it to revert and fall into line with other Lings, it still retains its determination to blossom in October, continuing until December in the absence of severe frost. Its brightly-coloured spikes and vivid green are now a strange contrast to the shrivelled blossoms of others of its kind. *A. T. Johnson, Ro Wen, Conway, N. Wales.*

BULB GARDEN.

LILIUM PHILIPPINENSE VAR. FORMOSANUM.

As there seems some confusion about the number of flowers on one stem of Lilium philippinense var. formosanum, "Price's variety," I am sending a photograph of some plants I raised from seeds. The seeds were kindly sent me by Mr. James, who lives in north London. The tall plants are in their second season of flowering, and the largest number of blooms I had on one stem was fourteen; the most prominent shown in the illustration (Fig. 148). Mr. James informed me this Lily would flower fourteen months from the time of sowing the seeds. I expect it would if kept in pots, but I planted mine out from three-inch pots about fifteen months ago. The seeds germinated very freely; the dwarfer plants are from a later sowing, which I hope next season will be as tall and as free-flowering as the others. All withstood 25° of frost last winter. This is a fine Lilium, and its scent is charming. *H. Kempshall, Abbotsbury Garden, Weymouth.*

MODERN DELPHINIUMS.

DURING the past quarter-of-a-century the perennial Larkspur has been moving steadily towards perfection. Each year one wonders if any further progress is possible and yet one finds some new combinations of shades hitherto undreamed of. In addition to the numerous shades of blue, purple and mauve, a tinge of red is creeping into several of the modern varieties, thus hinting at the possibility of a still further extension in the range of colour. A noteworthy feature in up-to-date sorts is that of the wonderful jewel-like centres of the flowers, which florists call "eyes." These often form striking contrasts to the background on which they are set, and they may be pure white, creamy-white, jet black or brown. The latter often assume the appearance of a cluster of bees settling on the flower, and such sorts are described as "bee-eyed." Improvement is, likewise, noticed in the size and form of the individual flowers. I measured some "pips" last summer, and they were easily three-and-a-half inches in diameter.

As a border plant the Delphinium can hardly be excelled. The plants come into flower early in June, and if the primary spikes are cut before they are allowed to set seeds the dainty lateral spikes carry the flowering period well into August. The plants may be put into the ground either in the autumn or spring as circumstances dictate. In very heavy soils spring planting is perhaps advisable, although where the soil is well-drained, I do not think there is much in it. The culture of these plants is practically the same as that of most border aristocrats, the chief desideratum being a deeply-cultivated and generously manured soil.

The reason why amateur growers often produce better spikes than the nurseryman is that they are able to give that individual attention which the trade grower may not find time for. The professional grower spends his energies in the production of a saleable stock of new and noteworthy types. The raising of seedlings is a fascinating occupation (Fig. 151).

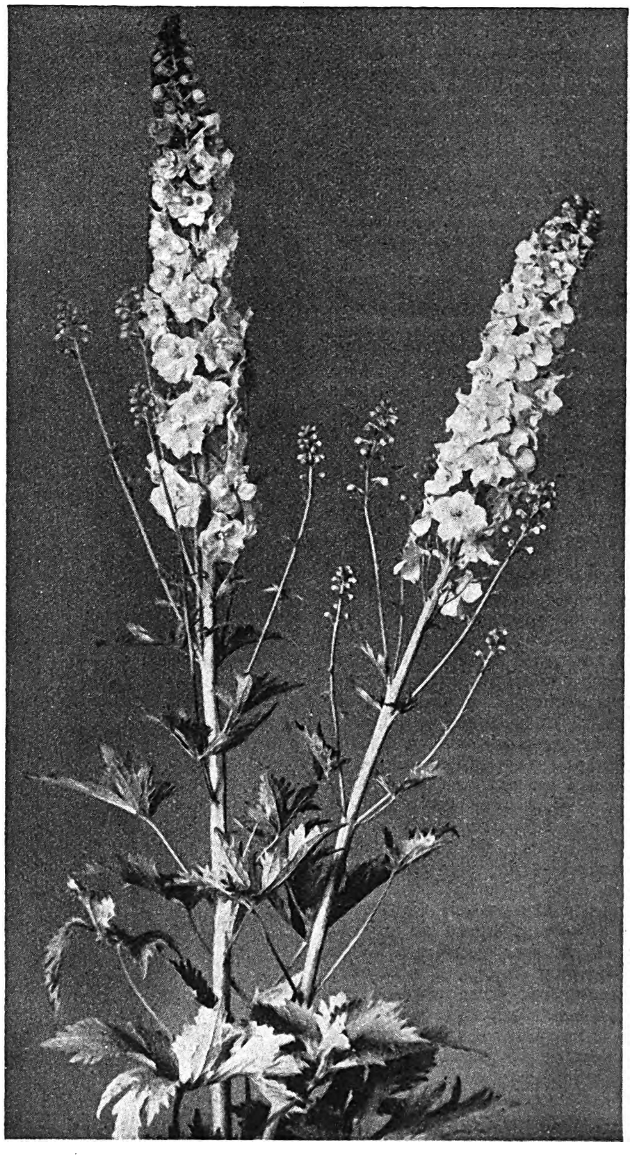
FIG. 151.—A GOOD TYPE OF SEEDLING DELPHINIUM.

The chief enemies of Delphiniums are slugs and snails, and these pests should be guarded against in the spring when the young shoots are appearing above ground. Some kinds seem to be susceptible to mildew, but those which show this tendency are generally excluded from commerce, so that this disease may not yet be regarded as a serious menace.

Among recent novelties which made special appeal to me during the past summer were Mrs. Philip Runciman, reddish-purple and deep blue, large flowers and immense spike; Kate Greenaway, a porcelain-blue variety with crinkled sepals; Dark Lantern, deep violet-blue, creamy-yellow eye; Red Dawn, deep purple, tinged red, white eye; Happiness, pure light blue, white eye, long slender spike; Knight of Somerset, strong gentian-blue, black and creamy eye; Cecil Henderson, bright blue, tinged purple, yellow eye; and Wedding Bells, with lovely mauve-pink edged sky-blue, semi-double flowers and tall spike.

Among older varieties, I regard the following as varieties of outstanding merit. Dusky Monarch, a semi-double variety, light purple with black eye and a branching habit; James William Kelway, deep purple and violet, white eye—this variety is an improvement on King of Delphiniums, the variety which made such a stir when it was exhibited in London some years ago; Kelway's Goliath, deep blue, edged purple, black eye with a yellow fringe; Geraldine Kelway, light azure-blue, white eye; Mrs. James Kelway, pale sky-blue, with a spreading, white eye; Persimmon, still one of the best of the older varieties, light blue, bluish-white eye; Sir Douglas Haig, blue and purple, semi-double, majestic spike; Rev. E. Lascelles, deep purple-blue, spreading white eye; True Blue, an old sort that has retained its popularity, intense blue, black eye; Smoke of War, purplish-violet, tinged red, black eye; Norah Ferguson, pale blue and soft pink, a charming combination; Monarch of All, violet and purple, bee-eyed; and Millicent Blackmore, a fine variety with flowers of a pleasing blend of blue and mauve. *H. Greaves, F.L.S., Minehead.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXIII.—Storm and Distress.

After the deluge on October 1, which witnessed also the conquest of Polon, the weather began to improve steadily for three days, sunshine and showers playing hide-and-seek with each other. And then came typhoon! At last I was able to take my seeds up to the grassy ridge, five minutes' scramble from our camp. This look-out ridge faced south, and was quite dry when our camp was still wringing wet; when it was fine, sun and wind combined to warm it and sometimes we sat up there and watched the mist sweeping over the forested saddle in which our camp lay, and avoiding us altogether. Thus I soon had all the Primula seeds dried and packed—they now numbered five species.

The sky was perfectly clear when October 3 dawned; but the clouds gathered so quickly that by ten o'clock it was raining. There followed an April-showery day, and a stormy sunset, but after dinner the stars were shining again and our hopes ran high. The next day was finer, and at sunset we took our evening walk to the look-out, to enjoy the panoramic landscape. Everything looked ridiculously near. Right in front lay the deep ravine which separated us from Chibaon, where we had halted for twelve days in April; its lowest slopes, 5,000 feet below, chequered with crops. Beyond that we could see a little bit of the Delei river and follow its valley through the mountains to the Lohit, and make out patches of cultivation and clearings across the Lohit. Sadiya itself was considerably less than a hundred miles away, and in the south-west, where the slope of the mountains flattened out, we could see the edge of the plain. Far away to the south, beyond the Lohit, the mountains of the Assam-Burma frontier rose faintly against the opalescent sky.

We were only a decent day's march from Chibaon, and once there we felt we would be in a more friendly and familiar country. Above Chibaon the valley changes its character; the path leaves the river and climbs up and down over high spurs, the scenery is harsher, the flora changes from tropical and sub-tropical to temperate and alpine, and the people, who cultivate Wheat and Barley, as well as Maize, are more hostile to strangers. But from this look-out ridge we could see none of the country to the north, which was hidden by the forest on the north slope; only southwards, over the tops of the stunted trees, could we see the softer curves of the mountains, cleft by invisible, winding rivers. Away up the ridge, past the temperate forest, past the fringe of Fir trees, and the Rhododendron tangle, Polon bulged up bare and menacing, hiding all but the twin summits of Kaso, which is the first high peak on the Delei-Dou divide. Below Polon, that is, towards the Lohit valley, comes Atsin, a comparatively low hummock, about 12,000 feet high, on the divide above Chibaon; and after that, nothing—the ridge simply falls away to the Lohit in steep arcs. From our Kaso ridge on the other hand, a few miles to the north, we overlooked the sterner half of the valley. To the south, owing to the bend of the Delei, the overlapping spurs cut out the Lohit altogether; northwards, the horseshoe of sharp peaks, snow-clad for most of the year, which surround the head of the Delei valley, were always in view—when it was not raining or snowing.

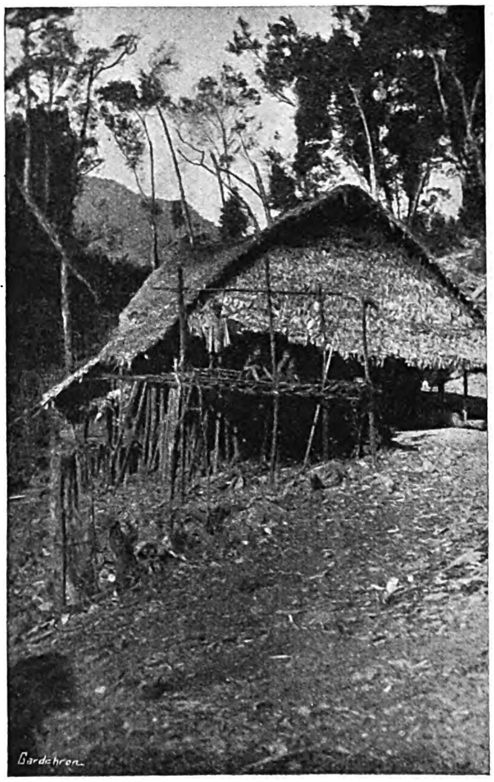

FIG. 152.—A NATIVE HUT IN THE HILL COUNTRY.

The change of the monsoon is usually ushered in by thunderstorms, a sudden fall of temperature, a change in the direction of the wind, and by the dissipation of the rain mist, such clouds as still prevail having firm outlines. Some at least of these conditions had been fulfilled, and we felt certain that we were going into reverse; in four or five days now I expected to start for Kaso, although the longer it could be delayed with safety, the better. I remembered that in the Seinghku valley in 1926, after the first week of October, the weather had been glorious, except for an occasional storm; nor do they expect much rain in Sadiya after September.

Meanwhile, a number of Mishmis had come up and gone off with all our spare gear to Chibaon, where it was dumped, to await our arrival *en route* for Sadiya at the end of the month. We ourselves could not go direct to Chibaon, but would have to return to Meiliang first, where most of our kit was stored; and then down the valley to Chibaon and the Lohit. That night (October 4) after dinner, the moon being at the full, and the owls screeching above our camp, Buttercup and I once more walked up to the look-out. It was a fine scene, with the ebony shadows of the mountains flung obliquely across the moonlit valley, and a few stars glowing warmly in a metallic-looking sky; but I noticed with misgiving that sometimes a coloured halo surrounded the moon, and that it was caused by streamers of thin mist which, from time to time, came flying up from the direction of the Lohit across the moon's disc. However, it was impossible to believe that such a superb night could be followed by anything but a cloudless day. It was ten o'clock when we returned to camp—the owls were still noisy—and in view of the approaching alpine tour, before turning in I made hasty preparations to climb Polon again on the following day.

Before dawn on October 5 the rain was crashing down once more, and although I breakfasted by candle light in the ghostly dawn, the weather was so utterly bad that I decided to postpone the climb. Not since June had we had such a deluge: it was the beginning of a nine days' storm which ruined all my plans.

At this season a new crop of plants was flowering in the middle forest. Among notable species were an Arisaema with a green spathe drawn out at the tip into a fishing line, a handsomely mottled stem, and a shining leaf composed of six or eight wedge-shaped spokes. It grew scattered in the forest, and was nowhere common; as usual, for every female plant there were three or four males, and since it was not possible to get seeds of this species, I dug up some rhizomes to send home. Secondly, a climbing Fumitory (Dicentra ?) with smooth, pale, sea-green leaves and clusters of bright yellow flowers, turning orange with age, and followed by little, dangling, red Pear-drops. This was a rampant annual, above ground, dying down to the base in winter. I have met with it previously in Burma, but low down, at about 4,000 feet altitude, with paler flowers; this form from 8,000 to 9,000 feet, if it is the same species, is a distinct improvement on the lowland form, and might be quite hardy. Anyhow, it is well worth growing in a cool house, as the foliage is distinct, and flowers and fruits are seen at the same time. There were also several species of Crawfurdia, growing in tense spirals, punctuated with dangling bells, up the Bamboos. One species had pale flowers, white with violet bands, or violet with white stripes; that was not of much account. Another had dark, glossy, violet flowers, and was more handsome—I have not seen it before. In a previous chapter I referred to these twining Gentians as worth a place in the cold house—the purple C. campanulacea which I saw in the Naga hills was specifically mentioned. This violet-flowered plant is even better, but there was no chance of getting any seeds. The Magnolia* was now in good bud, and I expected it to flower almost any day; but it had not flowered by October 26, at any rate! In the middle of the month a Schima bloomed freely, but the flowers are small. Lastly, several Orchids, including a Cirrhopetalum, flowered in October.

Although the deluge of October 5 was distressing, I did not take it very seriously. Of course, it is quite impossible to state just when the monsoon will end, but even if the weather was unsettled for the next fortnight, it need not necessarily upset my plans, although I should have preferred fine, settled weather. But when, day after day, it continued to pour with rain, and not only that, but to blow furiously from the north, our faces grew longer and longer. "The north wind doth blow, and we shall have snow," I thought to myself, as I sat in my tent with numbed feet. It was bitterly cold, a damp, penetrating cold, and the mountains were entirely hidden by a thick blanket of mist. Never had our camp been such a bog as it was now; a small river flowed through Buttercup's tent, a lake formed in mine. We could not light the stove because the oil was finished. Worse still, by October 5, the Rice, too, was finished, and Luso had to subsist on maggoty flour, although Buttercup, by strategy, induced him to take some tinned milk, of which, thanks to self-denial, earlier in the year, we now had a small surplus. By the evening of the 8th the wind had shifted again, and was blowing boisterously from the north. It was a sad day; during a lull, I went up to the look-out, and behold, the entire ring of mountains, from Kaso onwards, was white with snow! But what else could we expect! Then the clouds blotted out the painful scene once more.

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 14, 28, and October 12, 1929.

* M. Campbellii.

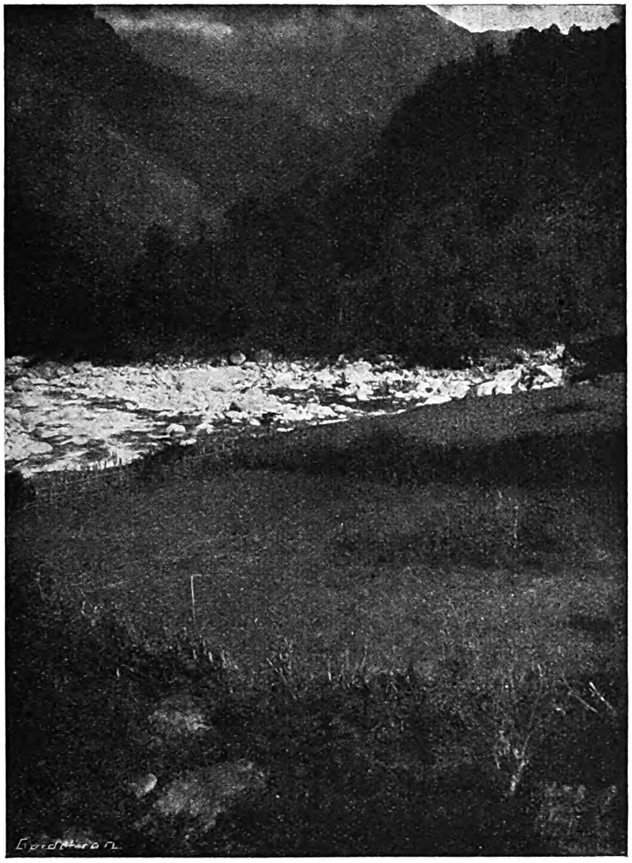

FIG. 153.—THE DELEI VALLEY.

On the 9th, Buttercup and I could stand it no longer, so up the mountain we went, and for eight hours we buffetted with the wind, soaked to the skin, while we collected Rhododendron seeds. I ascended to 11,000 feet, and cold as it was, it was better than sitting in a tent, storm-bound. We collected seeds of about seventeen Rhododendrons, as well as a few other shrubs. The storm continued with unabated fury, the wind blowing alternately from the south and from the north; on the night of the 10th, it blew a gale, and the rain was the heaviest we had experienced in the Delei valley. We were not surprised, therefore, when, during an armistice on the 11th, we noticed that Polon was now snow-clad. The chances of reaching Kaso from the Polon ridge were now remote. In my diary is the following comment under date October 11. "The Delei valley has rebuffed us and flouted us in every possible way; but it has kept its most deadly weapon for the last round." And then, under date October 12-13. "No change in the weather . . . Violent storm from the north on the night of the 12th, and a perfect deluge of icy-cold rain on the morning of the 13th . . . I am continually thinking of the plants now lying under the snow, and of how to save something . . . the problem of Luso's food is acute . . . on the afternoon of the 13th, it began to clear up . . . Polon has a good cap of snow, Kaso is white, all along the ridge as far as Saluenense Hill, and even Atsin has a little snow lying on it. The river is enormously swollen."

However, the 14th was fine at last, although by midday there was a lot of cloud about. I went up the mountain and collected certain seeds; and when I got back to camp I found that all the Mishmi coolies had arrived. Thereupon, we arranged that next day Buttercup, whose foot was too sore to allow him to do a big climb, should return to Meiliang with the kit, while Hubble, the Meiliang Gam and I went up to the cave and collected on Polon. If we could get along the ridge to Kaso we would do so, but so much snow had fallen, that it seemed improbable. If we could not get on, we would do two days' collecting on Polon, return to Meiliang in a day, and then go up the valley and tackle the Kaso ridge from our old camp. After getting everything fixed up we went to bed.

F. Kingdon Ward.

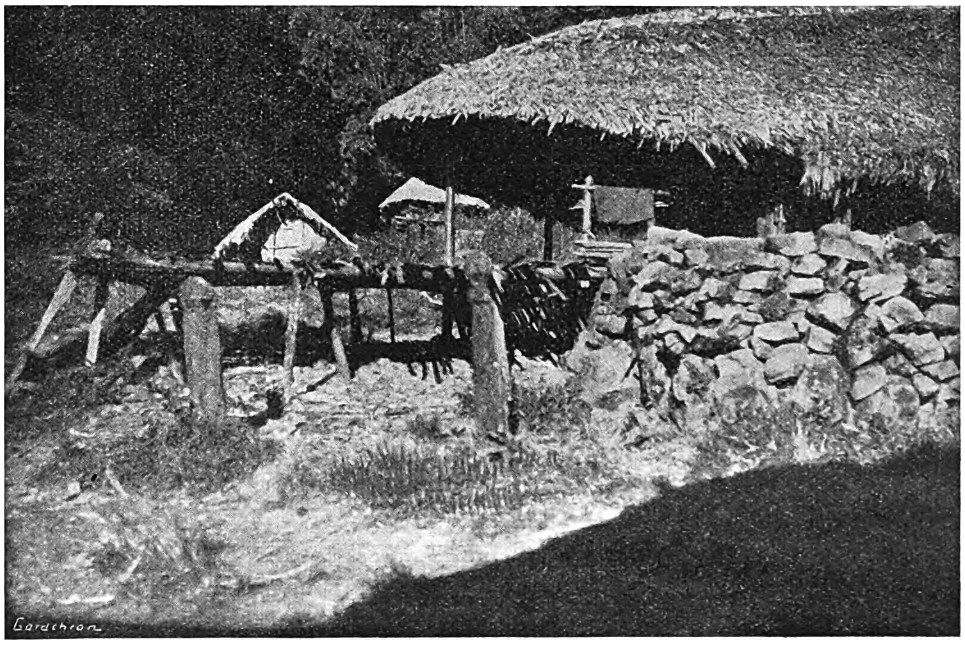

FIG. 154.—A CHULIKATA MISHMI HUT.

AN ENGLISH GARDENER IN CHILI.

(*Continued from p.* 306.)

UNDER the third group there are a few plants well-known in cultivation, especially Drimys Winteri and Gunnera chilensis, the former being of botanical interest and prized as an uncommon tree in the more temperate parts of England, while the latter is well-known as a splendid specimen plant for waterside planting. In Chili its long leaf petioles are regarded as a delicacy known locally as Pangae and eaten raw. In the central provinces these species are generally found in valley bottoms where there is always water, either actual springs or running streams. These Quebradas, as they are called, are in most cases deep but comparatively narrow, and they are invariably clothed with dense vegetation, in marked contrast with the plateaux above.

Another plant worthy of note which grows side by side with these is Fuchsia macrostemma —El Chilco—which has long, slender stems, and trails among the branches of other shrubs and bushes, relying, to a great extent, upon them for support, and frequently reaching a length of ten feet to twelve feet. The solitary flowers are borne on long, slender peduncles, giving the plant a very graceful appearance, while the distinct colours of the flowers—red calyx and violet corolla—always attract attention. The flowers are specially attractive to a small species of humming bird, locally known as Picaflor, which, with wings moving so rapidly as to be invisible, remains stationary in the air, while thrusting its long beak into flower after flower in search of nectar; this bird is stated to be the most effective agent of pollenation.

A plant of similar habit and frequently intertwined with the Fuchsia, is Eugenia Chequen, called, together with Myrtus apiculata —El Arrayan. This has small, glossy green leaves that show off to good effect the numerous white flowers which closely resemble those of the common Myrtle. Another interesting example of this habit of growth is a species of Azara with umbels of bright yellow flowers, which appear to consist of stamens. The plant has the peculiarity of possessing two sets of leaves; large ones approximately three inches long by one-and-a-half inch broad, and small leaves not an inch long and about three-quarters-of-an-inch wide, in fact, almost circular; as both types arise from the same node, and as they lie in the same plane, it may be regarded as an excellent example of leaf mosaic.

The most common undergrowth in these valleys is the rather coarse-growing Fern, Blechnum chilense; it has erect, pinnate fronds, four feet to six feet high; frequently the stem reaches a foot or two high, then flops down in the swamp, turns upwards, and again commences to grow. Two species of Adiantum and Aspidium rivulorum are also fairly common, and an Equisetum with a very fine habit of growth is also plentiful; the last is, I believe, E. bogotense, and is used as medicine when infused in water; it is also extensively and effectively employed for cleaning brasswork.

Farther south, where the valleys are generally wider and where there is much more water, a wider range of Ferns occurs, including Tree Ferns, such as Lophosorus glauca (Alsophila pruinata, Gay), which grows so much as ten feet high and covers an area of so much as fifteen feet. Blechnum magellanicum also has large pinnate fronds up to six feet long. Here, also, is the home of Lapageria rosea, the national flower of Chili, known as El Cophui, while the fruits, which somewhat resemble a small Pear, are known as Pepinos, and eaten. For most of the year it is necessary to wade through swamps to reach the plants, and the youngsters of this part of the country find it a profitable source of revenue to gather bunches of flowers and besiege passing trains at all wayside stations; a huge bouquet can be purchased for 1s.

To return to the central provinces. I have dealt up to the present only with those plants and trees which grow either actually in or beside water, that is in the valley bottoms. The slopes of these valleys present something of a transition from water-loving to drought-resisting species. Naturally, the flora also varies with the soil, and to a considerable extent with the direction; those which run north to south are frequently comparatively bleak, probably owing to the cold winds from the Antarctic, while others in the same locality, but with a more favourable aspect, are clothed with vegetation. One sometimes finds valleys which are clothed with trees and abundant vegetation on one side, while the opposite side carries an extremely xerophytic type of vegetation.

It is difficult to decide what are the factors responsible for this phenomenon; is it due to aspect, soil conditions, drought, or to a combination of these or other factors? It is chiefly on these more arid slopes that Puya (Pitcairnia) coerulea grows in profusion. This species is not so stiff and erect in habit as P. chilensis; the leaves are grey and more arching, while the thick stems are more prostrate and consequently the rosettes are wider apart. The inflorescence, generally about eight feet or nine feet high, is also lighter in appearance, and the floral colour is more striking—a cold, greenish-blue.

The columnar Cereuses (C. Quisco or C. chilensis) make huge specimens up to ten feet or fifteen feet high, with, frequently, ten or twelve parallel stems. Here also grows a spherical Echinocactus with salmon flowers that are followed by red fruits; it grows about eight to ten inches in diameter and has thick, strong spines. In the more luxuriant areas is found the Macqui, Aristotelia Macqui an evergreen dioecious tree, and quick-growing, provided it has its roots near the water. The shining, bright green, ovate leaves are about two inches long, and borne on bright red branches which, later, turn to a dull violet. The fruits—round, dark purple berries—are much esteemed and are used for confectionery and a native drink; the juice of the fruits stains everything and is employed for colouring wines, etc.

One of the commonest trees on these slopes is the Peumo (Cryptocarya Peumus), which reaches, under favourable conditions, a height of thirty feet. Another not previously noted is El Molle (Schinus latifolius), an evergreen of low, spreading habit, carrying innumerable panicles of small, white flowers followed by shining, black berries.

Among the varied undergrowth, in situations which are bone-dry for several months of the year, Solanum tuberosum is found in abundance; vigorous and healthy to a degree, it bears no indication of disease! The stems trail along in a tangle, among other plants, to a length of five feet or six feet. Writing from memory, the whole plant seemed to be more hairy than the cultivated varieties, and the foliage much larger. The flowers are very similar, almost white, but with violet diffused lightly through the corolla, particularly towards the centre, and contrasting well with the column of orange stamens. When lifting the roots, however, there is disappointment, for the tubers are never larger than a Walnut. Whether they are truly indigenous here is an open question, as it is recorded by the Spaniards that the Indians used them extensively as food prior to the Spanish conquest.

There are two or three lianas which take full advantage of the crowded conditions, especially common being a Composite with inflorescences of a soft, down-like character, brown, tinged with red. Its stems climb through the branches, particularly of the Peumo, like thick ropes, sometimes so much as four inches in diameter, and when they reach light they branch freely, all the smaller branches being furnished with hooked appendages. As there is one hook at each node, and pointing down, the plant is effectively anchored to the branches of the host tree. The leaves on the young growths are two inches long by two inches broad, cordate and serrate, the teeth being armed with short spines; in the older growths the leaves are narrower and more elliptic. A species of Vitis or Cissus is also very vigorous, clinging to the trunks of the trees until clear of the branches and then overhanging; I am not sure whether this is indigenous or introduced and gone wild.
G. W. Robinson,

(*To be concluded*).

THE ROMANCE OF OLD APPLE TREES.

In many of the grass orchards attached to farmsteads and manor houses in the West Country there are old Apple trees which are historical, and about them is an atmosphere of sentiment and romance. In a number of the orchards I am describing, overcrowded, may be, and devoid of any law and order in the scheme of planting, there are to be found Blenheim Pippin trees, and their presence can be traced back to a period when the only object in planting orchards was to produce Apples to grind into cider, then the staple, if not only, beverage, consumed by the farmer, his family and his work-people.

The cider Apples are generally a mixed lot, some bearing local names and others nameless, and raised in the first place from the pips which were thrown out with the "must" from the cider mill. But while the farmer troubled little about the fruit he grew for cider-making he wanted a few Apples to eat, and even if there were other varieties then available the chief favourite must have been Blenheim Pippin, judging from the number of old trees there are still growing in west of England orchards.

In surveying the gnarled stem and thick limbs of one of these antique specimens one longs to know its history, how long it has been there, the storms it has weathered, the number of owners it has had, and how many tons of fruits it has produced. The chances are that the tree has never been sprayed, the pruning it has had has been restricted to occasionally cutting out a few dead branches, and the bunches of parasitic Mistleto which may grow on the limbs and never seem to have done any harm. Not only do these old trees bear crops, and will continue to bear for years to come if they are spared by the wind, but they produce Apples of a rich rosy colour and of a flavour the best which a "Blenheim" can give—which is saying a good deal. I may add, in passing, that I took particular note of the Blenheim Pippin classes at the recent autumn fruit show organised by the Royal Horticultural Society, but I saw nothing there that would equal in colour, quality and flavour Apples grown this season on dozens of old orchard trees in the west, because, for some reason or other, it is only from old trees that one seems to get "Blenheims," as a dessert Apple, at their best in point of flavour.

As an instance of the sentiment that attaches to some of the old trees, a farmer I know had a favourite Blenheim Pippin blown down a few years ago, and another person would have cut it up for firewood; but sentiment proved too strong. The farmer had climbed into its branches as a boy to pick the Apples. So had his father before him, and by dint of pulley blocks and considerable labour, the tree was raised into a leaning position, was propped to keep it there, has borne several good crops of fruit since, and seems none the worse for the drastic root pruning it received.

Still, the fact remains that few people can be induced in these days to plant trees of Blenheim Pippin in their orchards, the complaint being that the variety is so long coming into bearing, which is true under present methods of propagation, and there are no records to show how long the old trees stood in the orchards before crops were gathered from them. One thing I do know, however, that once they began to bear they have never failed since, except in their "off" seasons, and there is something very much in favour of planting a variety which has such a record of longevity and productiveness.

In a number of the orchards within a few miles of the city of Gloucester there are old trees of a dessert Apple which was conspicuous by its absence at the R.H.S. Fruit Show. I refer to Ashmead's Kernel, which is distinct on account of its russety appearance and the characteristic mark around the fruit. The presence of Ashmead's Kernel in local orchards may be easily explained because, according to Dr. Hogg's *Fruit Manual*, the Apple was raised more than a century-and-a-half ago by Dr. Ashmead, an eminent Gloucester physician, on a spot which is now one of the busiest streets in the city, and it, doubtless, having earned a local reputation for its dessert qualities, grafts from the parent tree were acquired by interested people, and from these the old specimens in the orchards I have referred to were established There is a romance about them; they have a historical association, and sentiment protects them, but when they go the variety will be lost to the district, for no one plants an Ashmead's Kernel tree now, as it does not come up to present day commercial requirements, and if fruits of the variety are sent into the market they make little money because few people know them, and their appearance does not recommend them; therefore the growers generally reserve these Apples for private customers who know what an Ashmead's Kernel is like when at its best.

An interesting old Apple in Gloucestershire orchards is one called Underleaf, a good cooker and keeper, but the variety—I do not know its origin—has a habit of growing old and then making itself young again. The explanation of this is than an Underleaf after living for the greater part of a century and bearing tons of fruits, will appear to have finished its career, when young wood will break out from the old stems and make a new head, which will go on bearing for many years longer. There is a local saying that you have never done with an Underleaf, and in support of this I know trees in orchards with only the shell of the old stem remaining (hollow in the centre), but yet from this shell young branches have pushed out and the old relics present from a distance all the appearance of young trees.

The trees about which I have written are all old, many others of similar character might be referred to, and I attribute their longevity, vigour and freedom from disease to the method of propagation that was in vogue before nurseries were established and the "raise trees quickly" process of to-day came into operation. If the stems of old orchard trees are examined it will be observed that a few feet above the ground there is a bulge in the thick trunk. This marks the point where the Apple was grafted on to the wild Crab stock, which was planted in the orchards and established as a young tree before it was subjected to the process which Shakespeare describes as "an art which doth mend nature, change it rather, for the art itself is Nature." Names are mentioned still of men who had local reputations as raisers of true Crab stocks, and I have in my possession a section of an Apple tree trunk which I rescued when it was being cut up for firewood. In the centre there is the top of the original Crab stock in which two grafts were inserted One developed into a tree which must have grown for more than a century, bore tons of Apples, died through sheer old age, and when it was being cut up to serve its last purpose the other scion—which had died—was found in the stock, just where the grafter had fixed it.

I venture, in conclusion, to state that, slow although it was, this old world method of propagating orchard standard Apple trees has never been improved upon, and there is an air of romance about the method as well as about the old trees and many of the varieties that are still growing to-day in west country orchards. *G. H. H.*

NOTICES OF BOOKS.

Dessert Fruits.

Like Rolla, Mr. E. A. Bunyard, whose book *The Anatomy of Dessert*[*] I have just read with pleasure and with profit, was born too late into a world too old. Canning, chemicals and cold storage have combined with mass-production and marketing boards to produce a uniformly low standard of food, or, in Mr. Bunyard's words, "the Jonathan Apple and Jamaican Banana level." Gone, never to return, are the days when the seventy-odd "mansions" in Prince's Gate housed fifty French chefs; the Café Anglais, Ledoyen, Foyot, where the fine flower of young England learnt to know the subtleties of the *haute cuisine française* are but the pale wraiths of their former triumphs.

To a country that has lost *joie de vivre*, to a people that count petrol more precious than Pears and would rather have arterial roads than Apple trees, our author unfolds his earthly paradise. Were he commissioned to plant a new garden of Eden, and confined to a single tree or plant of each sort of fruit, this would be his list.

Of Apples, "to the Nordic nations the King," he would plant "Orléans Reinette"; "in the rich golden flesh there is a hint of the Ribston flavour, much of the Blenheim nuttiness, and an admirable balance of acidity and sweetness which combine, in my opinion, to make it the best Apple grown in western Europe."

Of Cherries, "Royal Duke . . . coming about mid-July, perhaps marks the highest. It is a dark fruit, but the richness of its flesh and delicate balance of acid and sugar put it very near the first place of all Cherries in my heart."

In Figs he hesitates between Bourjassotte Grise and White Ischia, so I must settle for him and choose the latter.

Gooseberries: "Glenton Green . . . Did I in a weak moment venture to select one fruit as the best flavoured of all, I rather fancy it would be this on which the lot would fall."

Grapes: "Chasselas de Fontainebleau . . . when well ripened, I place it far before any of our Muscats, be they ever so far loaded with medals. The flesh is firm, yet far short of toughness, sweet, short of sickliness, and the musky flavour not overdone. Every cool vinery should possess at least one of this superb fruit."

Melon: "Blenheim Orange is, I think, still unsurpassed."

Nectarines, Elruge, and Peaches, Peregrine.

Of Pears: "To the Latin nations the Queen of Fruits," Doyenné du Comice, indeed, deserves the regal title, and in spite of the enchanting account Mr. Bunyard gives of the discovery of this fruit *molto bene profumata, squisitissima* on the banks of the Loire in 1849, I maintain that Doyenné du Comice was the particular Pyrus whose

> "immortal taste"
> "Brought death into the world and all
> our woe."

"Ave Imperator!" is our author's greeting to Reine Claude Diaphane, "the King of Gages."

Lastly, comes the Alpine Strawberry, "one of the best of all fruits."

It must not, however, be thought from the symposium I have collected, that Mr. Bunyard is, any more than Samuel Butler, *homo unius libri*. Of all great dessert fruits he goes carefully through the gamut of varieties, noting their flavour, their perfume, the quality of the flesh, and their seasonal apogee. And lest these should become a mere catalogue, the pages are adorned with pretty wit and pleasant anecdote. What can be better than his account of the birth of Cox's Orange Pippin . . . "To Mr. Cox, a retired brewer, we owe this 'good creature,' as Mr. Saintsbury would call it, and we can picture the scene at Colnbrook Lawn, Slough, in 1825. Mrs. Cox would have drawn up her chair by the fire, the evenings are turning a little chilly, while Mr. Cox, who dines at four, is lingering over his port and dessert. 'Ah, my dear, now this is what I call a good Apple. Yes, yes, very good.' 'Pray, is it one of your old seedlings?' says Mrs. Cox, always a little doubtful of home productions. 'On the contrary, it is one of my new ones.' 'Ah well, I don't see how it can be better than a Ribston.' The firelight plays on the cut-glass decanter, and a slight reflection answers on Mr. Cox's nose, as he smiles his wise old man's smile and thinks how women are all alike—and so a great moment in history slips by. But perhaps Mr. Cox was a bachelor . . . "

Mr. Bunyard also suggests appropriate wines to accompany different fruits; here I find myself often in disagreement. He is too fond of a "rich Sauterne," an Yquem. Yquem to me is a sacrament, I drink it only at Christie's auction rooms, with a little bit of cheese, when some good fellow's cellar is put up for sale and he stands me lunch for the last time; wine before or after fruit, but rarely with fruit! I agree that Alpine Strawberries are delicious from a wine glass, but that glass should contain a Mersault or a Sarthe wine rather than a "light claret or Beaujolais."

This book is published in a limited edition, but I feel, indeed, I hope, there are more than a thousand *Feinschmeckers* in our island, and that a new edition will soon be called for. Especially the book is commended to fruiterers, and there is certainly one retail fruiterer, the proprietor of the best fruit shop in London, who may be relied upon to make good use of it.

Finally, Mr. E. A. Bunyard, as a member of the Council of the Royal Horticultural Society, and as Chairman of their Fruit and Vegetable Committee, has a unique opportunity to practise what he preaches; in the restaurant of the R.H.S. there is virgin soil to be tilled, and it is surely not too much to hope that at the fortnightly meetings we shall find in that restaurant not Jonathan Apples and Jamaican Bananas, but rather the best Nordic fruits in prime condition! *William Lawrence.*

Guide to the Flora of the Cape Peninsula.[*]

This is a useful work, and its title is a fair guide to its content. An immense field of labour has been condensed into a series of keys applicable to the various Main Divisions, Families and Genera, and is accompanied by notes as to the locality and flowering period of the various sorts now believed to inhabit the restricted area of the Cape Peninsula, and giving the number of species representing the various genera therein. But the need for a hand-book of this sort is only fully appraised by those whose labours in identification of specimens has been unduly prolonged by the absence of a book of keys.

Every individual differs from every other in at least some respects, and species are but groups of individuals bound together by some genetic bonds limiting variation. The object of a key-guide is, therefore, to bring the apparent chaos presented by nature within the ordered ranks of scientific nomenclature, and to attain this end with the least display of violence. But one should not expect any such system to work infallibly, for the earliest logicians admitted "topics of discussion" which were in their nature "not amenable to classification," and the student will surely find specimens which, after most careful classification, will still seem to be restrained with difficulty in their ordained positions.

We welcome every fresh effort to supply hand-books of this kind suitable for various geographical areas, for there is still a great field of work which has not been touched. Beyond this, there is another field of work of a more technical nature, which, when brought under control, would enable us to determine specimens of certain classes of plants and of bulbs, within a reasonable time. The present system only becomes determinative when flowers and fruits have been secured. But in the case of many Cactaceae many years may pass before a single flower may be obtainable, and so the whole process of identification passes beyond the life-span of the botanist. To avoid this difficulty the late Karl Schumann perfected a key-scheme largely based on the fact that the Cactaceae possess permanent stems always available for examination. To use a key of this kind certainly implies a well-practised observer, nevertheless, his key has been used even to the correct determination of species, the flowers of which the observer had never at any time seen. As this has proved possible in the case of the Cactaceae, will not some one oblige us by producing a key to those South African Amaryllidae whose long-delayed and erratic periods of flowering have been the despair of many botanists. Apart from the leaves which appear every year, the bulbs, tunics and roots have a tale of their own to tell, if any one would systematically examine them.

The author was probably wise when, for the purpose of comparison with alleged Natural Orders, she preferred Engler's system to that of Bentham and Hooker, and her avoidance of needless technical terms is admirable, bearing in mind that the bulk of those using this book will not be professional botanists.

To some it will appear strange to see deciduous Amaryllids described as "Plant with bulb." The "bulb" is, after all, the only permanent part of the organic whole, and should not be named as though it were a mere appanage to a "plant." In fact, modern horticultural use distinguishes between "plants" and "bulbs."

Brunsvigia is described as carrying a "many-seeded" fruit, and Amaryllis as carrying "a few seeds." This requires revision as regards the genus Brunsvigia, which cannot be separated, in a genetic sense, from Amaryllis. Students should give attention to the restricted area dealt with in this work, as many writers have, in a casual way, given "The Cape" as the habitat of many forms of vegetation which cannot be found within many hundred miles of the area dealt with in this *Guide*.

By acquaintance with specimens gained *pari passu* with theoretical knowledge, the student may advance quickly in his studies, and this book will show him how to do it without waste of time. He will find the figures more than helpful, as some of them are portraits of merit. *A. W.*

THE GENUS PRIMULA.

(*Continued from p.* 304.)

Secundiflora (Franch.). Secund-flowered P. (Sikkimensis).

A beautiful, deciduous, perennial species with a tuft of a few Papyrus-like, sub-erect, oval, oval-oblong or lance-shaped leaves from two to five inches long, tapering to a winged stalk; margins recurved, minutely toothed; upper surface more or less smooth, underside coated with yellow meal in the young leaves. Flower stem six to fourteen inches tall, bearing one to three superposed, one-sided umbels of six to twelve nodding, fragrant, deep crimson blossoms, faintly tinged with purple, on slender, graceful stalks, one-half- to three-quarters-of-an-inch long. Corolla concave or funnel-shaped, half- to three-quarters-of-an-inch across, with broadly egg-shaped, scarcely notched lobes; tube about half-an-inch long, cylindrical below, funnel-shaped upwards, slightly larger than the calyx. Flowers in June and July. Introduced in 1908. *Gard. Chron.*, 1914, Vol. LV, p. 357, Fig. 158.

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[*] *The Anatomy of Dessert*, by Edward A. Bunyard. London: Dulau and Company, Ltd., 1929. Price 10s. 6d. net. First edition limited to one thousand copies signed by the author.

[*] *Guide to the Flora of the Cape Peninsula*, by M. R. Levyns, Lecturer in Botany, University of Cape Town; with 199 illustrations. Juta and Co., Cape Town. Price 15s. 6d. net.

Grows in damp alpine pastures and on the margins of glaciers in the Lichiang range, in north-western Yunnan, western China, at 12,000 to 15,000 feet above sea-level.

Culture: Grow it in good loam and peat and treat as a bog plant when in growth.

SEPTEMLOBA (Franch.). Seven-lobed P.
(Cortusoides-Geranioides).

An elegant, deciduous, perennial species, with a sparsely-leaved tuft of rounded leaves from two to three inches across, heart-shaped at the base, borne horizontally on slender, hairy stalks from two to six inches long; margins divided into seven blunt, toothed lobes; both surfaces clothed with glistening hairs. Flower stems seven to twenty-four inches tall, very slender, hairy, bearing one, or at times two one-sided umbels of two to six semi-pendulous, fragrant, reddish-purple blossoms on short, curved stalks. Corolla nearly funnel-shaped, three-eighths- to half-of-an-inch across, with egg-shaped, slightly notched lobes; tube funnel-shaped, about three-eighths-of-an-inch long, exceeding the calyx in length. Flowers in August. Introduced in 1908. *Gard. Chron.*, 1915, Vol. LVIII, p. 297, Fig. 105.

Grows in damp, shady spots in and on the margins of woodlands, on the mountains of Yunnan and Szechuan, in western China, at 9,000 to 11,000 feet above sea-level.

Culture: Grow it in good loam and Oak or Beech leaf-soil, in a cool, shady spot.

SERRATIFOLIA (Franch.). Saw-leaved P.
(Candelabra).

A very beautiful, deciduous, perennial species with a short, thick rootstock and rosettes of thin, smooth, non-mealy leaves with oblong, oval-oblong or egg-shaped blades gradually tapering to a long, winged stalk, in all four to eight inches long; margins edged with sharp, often irregular teeth. Flower stems nine to twenty-four inches tall, bearing one or several, superposed umbels of about six yellow blossoms, with a broad bar of deep orange-yellow down the centre of each petal from tip to base. Corolla concave, about one inch across, with egg-shaped, not very deeply notched lobes; tube cylindrical below, dilated in the throat, about half-an-inch longer than the calyx. Flowers in June and July. Introduced in 1908.

Grows in damp alpine meadows on limestone formations, in Yunnan and north-eastern Upper Burma, at 10,000 to 12,000 feet above sea-level.

Var. roseo-tincta (Forrest) has fragrant flowers similar to the type in colour, but flushed with purplish-rose; plant nine to eighteen inches tall. Flowers in July; north-eastern Upper Burma, at 11,000 to 12,000 feet.

Var. unicolor (Forrest) has fragrant, pure pale yellow blossoms; plant nine to sixteen inches tall. Flowers in June; north-eastern Upper Burma at about 12,000 feet. *Gard. Chron.*, February 18, 1928, p. 121, Fig. 65.

Culture: As for P. Poissonii, with the addition of lime in some form to the compost.

SERTULUM (Franch.). Garland P.
(Farinosae).

A little-known species with a rosette of membranous, oblong or egg-shaped, blunt leaves, tapering to a long, winged stalk; margins furnished with sharp teeth; both surfaces more or less smooth. Flower stem about twice as long as the foliage, bearing a many-flowered umbel of purple, violet or white blossoms on stalks two or three times longer than the calyx. Corolla concave, five-eighths- to three-quarters-of-an-inch across, with oval, bifid lobes; tube longer than the calyx.

Grows in damp situations near Tchenkeutin, in Szechuan, central China, at about 8,000 feet above sea-level.

Culture: As for P. farinosa.

SESSILIS (Royle). Stemless P.
(Petiolaris-Sonchifolia).

A deciduous, perennial species with a somewhat stout, scaly rootstock crowned with a rosette of broadly lance-shaped, oblong, or egg-shaped-lance-shaped, rather thin leaves, rounded at the tip, tapering to a short, winged stalk, in all one inch to two inches long; margins sharply toothed as though gnawed by insects; both surfaces smooth. Flower stem obsolete, flowers numerous, borne on slender, more or less smooth stalks one inch to two-and-a-half inches long. Corolla about one inch across, with egg-shaped, oblong-oval or heart-shaped lobes, margined with sinuate teeth; tube about five-eighths-of-an-inch long. The colour of the blossoms of this species has not been recorded. Not in cultivation.

Grows in damp, mountain woodland pastures in the north-western Himalayas, at 9,000 to 12,000 feet above sea-level.

Culture: Good loam and leaf-soil in a cool, half-shady spot, should suit it.

SIAMENSIS (Craib.). Siamese P.
(Soldanelloidae).

A pretty, perennial species with a tuft or rosette of oblanceolate or oblong-oblanceolate, membranous leaves about three inches long and one inch wide, rounded or blunt at the tip, tapering at the base into a stalk about one-and-a-half inch long; margins furnished with a few obscure teeth and densely fringed with fine hairs; upper surface thinly covered with soft hairs, underside densely hairy on the nerves. Flower stem solitary, coated with white meal among the blossoms, and bearing a few violet blossoms in a head or short spike. Corolla about five-eighths-of-an-inch long, with broad, deeply divided lobes, margined with irregular teeth at the tip; tube funnel-shaped, about half-an-inch long. In cultivation in 1923.

Grows in open situations in clefts of limestone rocks at Doi Chieng Das, in Siam, at 5,000 to 6,000 feet above sea-level.

Culture: As for P. Reidii, but probably too tender to be tried out-of-doors in this country.

SIBIRICA (Jacq.). Siberian P.
(Farinosae).

A charming, deciduous, perennial species with crowded rosettes of pale green, membranous, smooth, non-mealy leaves half-an-inch to one inch long, with elliptic-oval or oval, blunt blades contracted into short stalks; margins entire or obscurely toothed. Flower stem three to seven inches tall, bearing a loose, many-flowered umbel of lilac or rose-coloured blossoms, on slender stalks half-an-inch to one inch long. Corolla three-eighths- to three-quarters-of-an-inch across, divided into five broadly heart-shaped, deeply-notched lobes; tube cylindrical, frequently twice as long as the calyx. Flowers in July.

Grows in damp places usually in exposed situations among very dwarf herbage, in the Altai, Kunlun and Baikal Mountains of central Asia and Siberia, also on the mountains of western Tibet, Kansu and Daurin, reaching an elevation of 16,000 feet above sea-level. Introduced in 1818. *Gard. Chron.*, 1916, Vol. LIX, p. 45, Fig. 20.

Var. arctica (Pax). Calyx about half the length of that of the type, corolla tube twice as long as the calyx. Arctic Europe and Asia.

Var. brevicalyx (Trauv.). Tube of corolla nearly twice the length of that of the type; inhabits the same localities as the type.

Var. integrifolia (Pax). Tube of corolla but little shorter than the calyx. Arctic Europe, America and Asia.

Culture: As for P. farinosa.

SIEBOLDII (E. Morren). Siebold's P.
(Cortusoides).

A beautiful but variable deciduous, perennial species with a tuft of oval or oblong leaves, two to four inches long and one-and-a-half inch to two-and-a-half inches wide, heart-shaped at the base, borne on hairy stalks about equalling the blade in length; margins cut into numerous unequally toothed lobes; both surfaces densely clothed with fine hairs. Flower stem four to eight inches tall, hairy, bearing an umbel of many blossoms varying from rose to purple and white. Corolla from three-quarters- to one-and-a-half inch across, with heart-shaped or egg-shaped, deeply notched and lacerated, or nearly entire, rounded lobes; tube slightly longer than the calyx. Illust. in *Journ. Roy. Hort. Soc.*, Vol. XXXIX, 1913. Introduced in 1861.

Grows in moist meadows in the Province of Kiusiu, Nippon, Japan.

Culture: Light, rich loam, in a moist, open situation, not too much exposed to the sun, with protection from severe frost and damp in winter, are the conditions indicated.

SIKKIMENSIS (Hook. f.). Sikkim P.
(Sikkimensis).

This elegant, deciduous, perennial species produces a tuft of thin, oblong-egg-shaped or oblong-spathulate, blunt leaves, tapering to a broadly-winged stalk, in all from four to eight inches long; margins furnished with sharp, saw-like teeth; both surfaces more or less smooth, non-mealy. Flower stem eight to twenty-four inches tall, fairly stout, at times mealy upwards, bearing an umbel of six to thirty crowded, nodding, faintly fragrant, yellow flowers. Corolla concave, half- to two-thirds-of-an-inch across, with five rounded, notched lobes; tube funnel-shaped, a little longer than the calyx. Introduced in 1850. *Bot. Mag.*, t. 4,597.

Grows in wet places in the eastern Himalayas, reaching an elevation of 15,000 feet above sea-level, also in moist meadows by streams, on the mountains north-east of Atuntze, in north-western Yunnan, at 12,000 to 13,000 feet.

Culture: Grow it in good rich loam and peat and treat as a bog plant when in growth; usually not very long-lived. *A. W. Darnell.*

(*To be continued.*)

HOME CORRESPONDENCE.

The Need of Education for Gardeners.—The time of year has once more come round when the gardener has a little spare time. During the summer he is far too busy in the garden for much reading of any sort, but now, with the end of "Summer Time," and the advent of long, dark, cosy evenings, I would suggest to any gardener who may read these notes that he cannot better employ his time this coming winter than by an intelligent study of his subject. Gardening, undertaken intelligently, calls for much study, as apart from the actual theory and practice of gardening (in itself a fairly extensive subject) there are many closely allied subjects that should be mastered. In these days of great competition, when it is only the most capable who can command the best paid work, it does seem very essential that gardeners, just as much as other people, should do their utmost to make themselves as efficient as possible; for the better trained and educated they are in their profession, so much the more are they helping to raise that profession to a better position, with better pay for all. There has been a great deal of discussion lately in the daily papers as to whether examinations are, or are not, of any use, but there is this point of view about it, there is nothing that makes one read up his subject so thoroughly as preparing for an examination. A person may make up his mind to set himself a course of study during the winter, but the probability is that unless there is an examination at the end of it, he will not attach overmuch importance to that study, and anything and everything else will come first. Friends will respect your evenings if they know there is a serious matter of an examination ahead, but not otherwise; they will just think you are a "freak" for sticking to your books, when you might go to the pictures. There are many of the younger generation of gardeners who are doing their level best thus to educate themselves, and an increasing number sits every year for the R.H.S. General Examination. The right point of view in gardening is that you have never finished learning, and after the R.H.S. General Examination, then comes the National Diploma in Horticulture—first the Preliminary Section and then the Final, which is quite a stiff examination, demanding much study and concentration. The time is past and gone (except in some of the more remote country districts) when it was considered good enough for a man to do as his father, grandfather, and more distant ancestors, had always done. Possibly the great majority of young men start their gardening life under a good gardener in some big garden, where to have been employed for a few years was thought sufficient to give a gardener a standing for the rest of his life; and so it may be, but it does not give him a knowledge of the theory of his subject. Think of the study of botany, that science "which endeavours to answer every reasonable question about plants," and tells of the structure, work, and physiology of the plants, knowledge of which helps the gardener enormously in the cultivation of plants. Then, the study of insect pests and diseases is most essential, and far too little attended to by many gardeners. Also, some knowledge of the chemistry of soils and manures is of the greatest value to the gardener in his cultivation of the land; new methods are being discovered continually, and to keep his knowledge and practice up-to-date, a man must ever be learning. In fact, in gardening, everyone is really a learner; even the oldest and wisest can never really penetrate to the end of this vast and fascinating subject. *M. G. Kennedy-Bell, Hornsey Lane Gardens, Highgate, N.6.*

Storing Plants during Winter.—There are quite a number of plants that require storage during the winter months, especially those that have bulbs, tubers or rhizomes. Some may require a stove temperature, notably Caladiums, while a number require a much lower temperature. Bulbs and tubers are probably best stored in the receptacles in which they have been grown, but where space is limited they may be turned out and stored in boxes of dry sand. Cannas are best stored under the staging in a cool greenhouse, on an earthen floor, where they may receive a certain amount of moisture. Cannas are often difficult to start into growth in the spring if allowed to dry out too severely. Large specimen plants of Hydrangeas, Agapanthus, Crinums and Fuchsias may be stored in a frost-proof shed, preferably with an earthen floor, so that a certain amount of natural moisture is assured. If the building is not quite frost-proof, cover the plants with rough hay during severe weather, but see that this is removed before growth becomes active in early spring. *T. P.*

R.H.S. Autumn Fruit and Vegetable Show.—When the Council of the R.H.S. decided to alter the classes for collections of vegetables it was a good thing for many who wished to compete, as these classes were arranged for large establishments with any number of men employed, for medium-sized establishments, and also for single-handed gardeners; all this has made competition fair. But could not the Council take such steps at their fruit show? Take the Grape classes; I think I am right in stating that nearly all (if not all) the prizes were won by large establishments; could not the large class for Grapes be confined to the large establishments—the same as in the case of the class for twelve kinds of vegetables—leaving the class for two varieties of Grapes for the medium and smaller establishments. My employer, who is a Fellow of the R.H.S. thought it unfair that the medium-sized establishments were not "protected" from the larger establishments, who have better facilities for growing Grapes. The man in charge of a medium-sized garden can grow Grapes well enough, but he is obviously handicapped. I have one large vinery (which ought to have been partitioned off when it was made), but I cut ripe Grapes in July and late Grapes up to the new year (bunches weighing 3½ lbs.) out of the same house. While at the show, I heard some bitter complaints concerning unfair competition—there should be some grading of exhibitors in regard to their facilities; some said they would not compete again, and that is the decision of my employer, unless the suggested grading is made. *A Sussex Exhibitor.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

(*Concluded from p.* 311.)

IRELAND.

Tyrone.—Pears, Plums and Cherries have been very disappointing this season. After a most abundant display of bloom and apparently a good set, the greater number of fruits fell off when they should have been passing through the first swelling. Pears are very scarce, the only variety bearing any quantity of fruits being Hessle, with about half-a-crop. Plums were little better; a few trees of Victoria were the only ones to carry a moderate crop. Cherries were very scarce, May Duke being the principal variety grown here. Apples are variable, those of the Codlin type, Bramley's Seedling and one or two others carrying fair crops, while Lane's Prince Albert, which rarely fails to bear heavily, is but lightly cropped. All small fruits were good, especally Gooseberries and Black Currants. *Fred. W. Walker, Sion House Gardens, Sion Mills.*

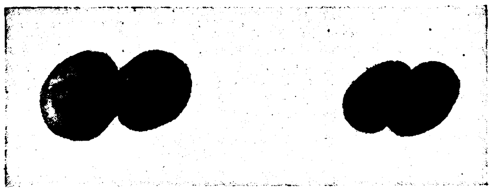

FIG. 155.—UNITED SOYA BEANS.

Down. — The long, continued drought shortened the crop of Raspberries, and Apples, in general, are inclined to be small, otherwise the fruit crops are good. The absence of Gooseberry mildew is the greatest feature to report. *T. W. Bolas, Mount Stewart, Newtownards.*

Cork.—Considering the peculiar climatic conditions experienced during spring and early summer, all fruit crops have turned out better than was expected. Apples are good in the majority of gardens and orchards. Plums and Pears have been good on walls, but irregular in the open. Among bush fruits, Gooseberries were outstanding. Black Currants, Raspberries, and other soft fruits were also good, but as a result of the prolonged drought and dry winds during the ripening period, their crops were of short duration. Apple scab is not so prevalent as in past seasons, but red spider, Plum aphis, American blight and American Gooseberry mildew have been very troublesome in plantations where winter spraying was neglected. *J. Dearnaley, 17, St. Patrick's Terrace, Magazine Road, Cork.*

Kilkenny.—Apples carried a wealth of blossom, but the set was disappointing, except in the case of trees which carried a light crop last year. Last season, a very heavy crop combined with a dry autumn to exhaust the trees. Pears and Plums set very well, and carried good, clean crops. Strawberries, although deficient in leafage, carried good crops; other small fruits also were good, but Apricots did not set so well as is usual here. Insect pests have not been troublesome, and the weather has, on the whole, been favourable, good rains having fallen in contrast to the drought experienced during the first six months in England. *T. E. Tomalin, Bessborough Gardens, Piltown.*

ISLE OF MAN.

Castletown.—Strawberries were very promising in bloom, but dry weather spoilt the setting of the fruits. Cooking Apples, in general, are carrying heavy crops, but dessert sorts are poor. Bush fruits, especially Gooseberries and Black Currants (the latter on stiff, heavy soil) fruited exceptionally well. Cherries set well on standards, but the fruits dropped when stoning, owing to the dry weather experienced at that time. The Gooseberry bushes are free from mildew.—*Frank Large, Great Meadow Gardens, Castletown.*

UNITED SOYA BEANS.

At one of the sessions of the Scientific Committee of the French National Horticultural Society, MM. Vilmorin showed some Soya Beans united in two's (Fig. 155). Two such cases were found, the one a Soya with a black seed, the other with a yellow seed. The phenomenon appears to be exactly on a par with that observed in the curious Peas with united seeds—"Chenille" (caterpillar) Peas—which were studied at Verrières. (See Comptes Rendus de la 4e Conférence de Génétique, Paris, 1911, "Ph. de Vilmorin—étude sur le caractère 'adhérence de grains entre eux' chez le Pois 'chenille'"—and A. Meunissier "Observations sur l'hérédité du caractère 'Pois Chenille.'" (*Genetica*, 1923).

However, while in the case of the Pea this characteristic is hereditary, it does not appear to be so with the Soya; at any rate, two united seeds previously found at Verrières on a Soya with yellow seeds which were sown last year did not reproduce the character. However, it is a curious phenomenon, which helps to bear out the theory of Professor Vavilov, in his "The Law of Homologous Series in Variation" (*Journal of Genetics*, April, 1922), which maintains that the same series of variations always presents itself in allied plants. To our knowledge, this curious anomaly has never been observed in any other Leguminous plants except Peas. It would be interesting to know if it has ever before been known to occur in the Soya. *A. M.*

VEGETABLE GARDEN.

HARICOT BEANS.

When I was admiring Messrs. Sutton and Sons' glorious group of vegetables at the Autumn Show I asked Mr. Leonard Sutton why he did not show baskets of Haricot Beans, and he told me that although they were grown during the war, no one wanted them nowadays. On the same day, in one of the morning papers, I read that the frequenters of smart restaurants were beginning to take hints from the good things served at humbler establishments; among these were baked Butter Beans, now much in demand at places like the Ritz and the Savoy. They certainly are very good, especially with mutton, but the ordinary large white Haricot is a bit filling. On the other hand, the pale green Flageolet has always had its place in the *haute cuisine française*, and is most delicious.

The standard variety is Roi des Verts, and the grains are under half-an-inch long; the Beans must be pulled, tied in bunches, and suspended to ripen in a sunny, airy place; if the pods are allowed to turn brown, the pale green colour of the seed also fades and this, although not materially affecting the flavour, spoils their appearance.

A very fine French Bean is Sutton's Early Giant, which not only is the quickest Bean to mature, but when cooked is notable for quality; it is dark green, tender and full of flavour. It was the first Bean to be picked here last March, and now we have a couple of lights which will last us well into November. Sown in the open, the pods are ready within six weeks of sowing. *William Lawrence, Burford.*

SOCIETIES.

NATIONAL SWEET PEA.

A RECORD ANNUAL MEETING.

During its twenty-nine years of existence, the National Sweet Pea Society has held Annual General Meetings of various characters. There have been the sedate meetings when everything proceeded placidly and according to expectations. There have been occasions when the air has been thunderous, but nothing exciting has happened. There have been stormy meetings which have rivalled some of our noted political gatherings, when the Chairman's task has been no enviable one. But all these were before Mr. Harold Beale became the Society's President. A meeting under his chairmanship could not be stormy or threatening, nor could it be a humdrum, placid affair, so it had to be what it was, the jolliest and most successful annual meeting imaginable. With Mr. Harold Beale conducting the first portion of the meeting, and Mr. Samuel Wallrock, taking over on his election for the ensuing year, presiding over an annual general meeting seemed one of the easiest jobs in the world. But this was largely due to the way they held the reins—to methods as distinct and separate as the poles, but both equally successful, and the large gathering had the satisfaction of carrying out the vast amount of real business in a most enjoyable manner. All the required ingredients for fireworks were there—three proposed alterations of rules, over which there were decided differences of opinions, and several fancied grievances over policy and competitions—but not even a damp squib resulted. Everyone was happy, on occasion, hilariously so; and even the member who took his personal desires most seriously went home feeling that all was pretty well with the best of all Societies, to wit, the National Sweet Pea Society.

During his year of office, Mr. Harold Beale has done much for the Society. At both of the shows he entertained the members most generously and well. Immediately before the Annual Meeting he lunched all who cared to come, and very many did. The famous establishment of Messrs. Carter and Co. was open to inspection and many were impressed by its extent and efficiency. Early in the season, Mr. Harold Beale, in his endeavours to increase the membership, had printed and circulated 20,000 folders relating to the Society. He also designed a new and beautiful certificate in natural colours for the Affiliated Societies, and gave the Society a three years' supply. In many ways, not overlooking the value of his personality, he served the Society splendidly, but in none was it more valuable than his happy manner of extending that good nature and fellowship among the members which continued throughout the meeting.

The Committee's Report and Balance Sheet, which were printed and circulated, show the affairs of the Society to be in a gratifying condition. As we have implied, two shows were again held during the season and, both in London and at Norwich, magnificent Sweet Peas were staged. Mr. William Huffey, of Tonbridge, achieved the difficult task of winning outright the *Amateur Gardening* Challenge Cup. Last year he won outright the Hawlmark Cup.

But on the morning of the meeting the Society received, with intense regret, news of the sudden death of Mr. Huffey from heart failure following an accident while on holiday. The meeting stood in a silent vote of sympathy and remembrance. The Report records the great services of Messrs. Robert Bolton and Son, who grew, free of charge, excellent trials of Novelty Sweet Peas, and also most generously entertained the Committee and many members who visited them. There has been a large increase in membership during the year under review.

As Honorary Treasurer, Mr. J. M. Bridgeford, again presented an excellent Balance Sheet, which shows a surplus of £69 6s. for the year, and he explained it, drawing comparisons with the previous year's statement, in a most interesting and lucid manner Small wonder that Mr. Bridgeford was re-elected with enthusiasm.

The Floral Committee's Report, read by Mr. C. H. Curtis, was another record of excellent work, and this also appealed to the members. Mr. Curtis also read the report of the Henry Eckford Memorial Trustees, and his announcement that the fund was now in such a good financial condition that no further appeals for donations would be necessary, was very gratifying. The Trustees' award of the Gold Medal for the year to Mr. Hugh Dickson was very popular.

Then came a most happy interlude which had the full approval and enthusiastic support of the meeting. The Society's President holds office for only one year and to succeed Mr. Harold Beale, the meeting was given the name of Mr. Samuel Wallrock, of The Manor House, Stanmore, Middlesex, who is so well-known as an amateur gardener with an especial love of Sweet Peas, with which he has been particularly successful this year. There was no question as to the wisdom and popularity of the Committee's nomination of Mr. Wallrock, for he was elected with great enthusiasm. His first duty, on taking the chair, was the presentation, on behalf of the Society, of its Gold Medal and a framed autographed copy of the large group photograph taken at the Norwich Show. This Mr. Wallrock did most felicitously, and Mr. Harold Beale received an immense ovation with the gifts.

The change of Chairman of Committee provided another opportunity for the meeting to express their appreciation of great work and unrestricted sacrifice of time in the Society's service by the retiring Chairman, Mr. F. J. Rogers, whose home is in the Isle of Wight.

The Secretary informed the meeting that Mr. Rogers had attended every meeting of the General Committee, and that he estimated Mr. Rogers's mileage in this service to be almost two thousand. The election of Mr. George H. Burt, grower to Messrs. E. W. King and Co., at Coggeshall, Essex, who has long been known as one of the Society's keenest and most hard-working members, as Chairman of Committee, was also exceedingly popular. On the proposal of the retiring Chairman, and seconded by a past Chairman, both of whom were very complimentary, Mr. A. C. Bartlett was unanimously re-elected Secretary. There were three vacancies on the General Committee, but in view of the popularity of their nominations, the meeting decided to elect the following eight members:—Mr. F. J. Rogers, Mr. A. W. Gower, Mr. F. Stratford, Mr. G. H. Bard, Mr. E. H. Starling, Mr. F. Cotterill, Mr. A. Abbott and Mr. W. H. Holloway.

The scrutineers announced that the ballot for nine seats on the Floral Committee had resulted in the election of the following:—Amateurs: Mr. E. H. Christy, Mr. F. J. Rogers, Mr. C. H. Curtis, Mr. W. Humphrey and Mr. C. Ball. Trade: Mr. G. H. Burt, Mr. D. Allan, Mr. A. Ireland and Mr. E. R. Janes. The Editor of the Sweet Pea *Annual*, Mr. J. S. Brunton, was re-elected, and thanked heartily for his long services, and the Auditors and Provincial Corresponding members of Committee were re-elected.

Under "any other business," Mr. C. D. Richardson appealed for more consideration in seats on the Committee and in the schedule of prizes for the metropolitan members. He was informed that on several occasions the schedules had contained classes such as he advocated, but there was no competition in them. With regard to the Committee, he was given the names of several metropolitan members and asked for a further nomination, but this was not forthcoming.

The judges of the Essay Competition announced that the three prizes had been awarded to Mr. George de la Perrelle, Easton-in-Gordans, Somerset; Mr. John A. Strickland, Gunness, Lincolnshire; and Mr. Thomas Baines, Marks Tey, Essex, in the order named.

In acknowledging the vote of thanks for presiding, Mr. Samuel Wallrock said it had given him the greatest possible satisfaction, and he felt convinced that having experienced the hearty goodwill and fellowship there was in it, the Society was bound to go on and prosper. The retiring President, Mr. Harold Beale, entertained the members to tea, and so ended the most successful and enjoyable Annual Meeting of the Society.

NEWCASTLE SHOW.

Undoubtedly the finest exhibition of fruits, flowers and vegetables that has ever taken place in Newcastle was that held on October 9 to 12. The show was organised by the *Evening World* and staged in the Pavilion, at the North-East Coast Exhibition. This is the third and concluding exhibition organised for the furtherance of horticulture in the north-east counties, and the appreciation of the public was reflected in the attendance; more than 25,000 people paid for admission.

This autumn show was originally intended for vegetables and flowers but, ultimately, some seventy fruit classes were added, and these classes not only brought keen competition, but the quality of the fruits throughout was remarkable. The vegetables, as was expected, attracted the pitmen of the north-eastern counties. The number of exhibits was enormous. In the classes for Leeks there were over one-hundred-and-fifty entries, the first prize in each class being £15. The collections of vegetables were of great merit, as also were the single-dishes which occupied buildings especially erected for their accommodation outside the Pavilion.

The fruit classes were in many respects similar to those held in the past by the Three Northern Counties Fruit Conference. In the class for six dishes of ripe fruits (open), Major C. Bewick (gr. Mr. W. E. Anderson), Close House, Wylam, was first, with good bunches of Muscat of Alexandria and Mrs. Pince Grapes, Belgrade Peaches, Doyenné Bussock Pears and Apples Cox's Orange Pippin and Allington Pippin; second, H. Deverell, Esq.

Mr. C. J. Dillon, Springfield Nurseries, Pontiland, showed the best two bunches of black Grapes; second, Major Bewick; and third, Mr. W. St. Howard, Wickham. For two bunches of white Grapes, Mr. J. A. Jones, Gallow Hill, Morpeth, led with good bunches of Muscat of Alexandria; Mr. T. Mytton, Blagdon, second; and Major Bewick, third, all showing the same variety.

The best six dishes of dessert fruits, not fewer than four kinds, were staged by Major Bewick, who also showed the leading nine dishes of Apples, six culinary and three dessert, and three dishes of Pears; his Pitmaston Duchess and Souvenir de Congrés Pears were very fine.

In the class for twelve dishes of Apples, distinct, Lady Rayleigh (gr. Mr. E. McLaren), Beaufort Castle, Hexham, was first, with grandly coloured fruits; Major Bewick was second; while for six dishes, distinct, dessert, Lady Rayleigh again led. In the class for six dishes of culinary Apples, Major Bewick scored, his Peasgood's Nonesuch, Rev. W. Wilks, Queen and S. T. Wright being very fine; Mr. Hodgson, Carlisle, was second, and Mr. J. Garbutt, Burney Hall, Throckly, third.

The competitive Floral Section was well filled, and some remarkably fine hardy flowers were shown. Grand Roses were shown in the class for twenty-four blooms not fewer than twelve varieties, in which Mr. T. Carrack, Greenside, was placed first, his best flowers being of Golden Emblem, G. Dixon, Mrs. C. Lamplough and Earl Haig.

Mr. Carrick also led in the classes for twelve and six Roses. For three vases of Dahlias, Mr. T. Matton received the premier award, while the best six vases of Chrysanthemums, three stems in each vase, were shown by Lady Allendale (gr. Mr. J. Thomas), Bywell Hall, Stocksfield.

The trade groups were exceptionally good. Messrs. Finney had a very fine collection of vegetables, artistically arranged, for which they received a Gold Medal. Similar awards were made to Messrs. R. V. Rogers, Pickering, who had Roses and hardy border flowers arranged artistically; Messrs. Kent and Brydon, for a grand collection of Potatos; Messrs. Michie, Alnwick, for a fine collection of Apples; and Messrs. Lawrenson, for a cottage garden design.

ROYAL HORTICULTURAL.

FOURTH AUTUMN SHOW.

October 23 and 24.—The fourth, and last, of the series of Autumn Shows, which was held in the new Horticultural Hall, Westminster, on these dates, was "chiefly for Orchids and Stove and Greenhouse Plants." Orchids were there in large groups of considerable beauty and excellence, and there was one magnificent group of stove and greenhouse plants, but beyond these the show resolved itself into one of autumn foliage and ornamental fruits, for such exhibits seemed to dominate the show, and they illustrated splendidly the great autumn garden value of many trees and shrubs. The Orchid Committee recommended one First Class Certificate and seven Awards of Merit to novelties. The Floral Committee recommended nine Awards of Merit to new and rare plants and shrubs. Although a large number of seedling Apples was submitted to the Fruit and Vegetable Committee, none was considered to be of sufficient merit to warrant an award.

Orchid Committee.

Present: Mr. Lionel de Rothschild (in the chair), Mr. Gurney Wilson (Hon. Secretary), Prince Shimadzu, Mr. Fred J. Hanbury, Colonel Stephenson Clarke, Mr. R. G. Thwaites, Mr. E. R. Ashton, Mr. Stuart Low, Mr. T. Armstrong, Mr. J. Cowan, Mr. Robert Paterson, Mr. W. Hatcher, Mr. Charles H. Curtis, Mr. J. E. Shill, Mr. H. H. Smith, Mr. S. Flory, Mr. A. Dye, Mr. J. Wilson Potter, Mr. F. K. Sander and Mr. H. G. Alexander.

First Class Certificate.

Brasso-Laelio-Cattleya Ambaurea (*B.-L.-C. Amber* × *Cattleya aurea*).—Another gloriously beautiful hybrid from Dell Park, and a grand addition to the fine series of yellow hybrid Orchids from this collection. The flowers are of fair size, well expanded, and of good shape. The sepals and petals are a lovely shade of rich, soft yellow, while the lip is deeper yellow with a waxy rim of cerise and some reddish markings at the apex and in the throat. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

Awards of Merit.

Laelio-Cattleya Cassandra, Melchett var. (*L.-C. Sargon* × *L.-C. Gladiator*).—A very large-flowered hybrid with widely-expanded, flattish blooms. The sepals and petals are purplish-mauve, with deep mauve veins down the centre. Lip wavy, the side lobes overlapping the column, deep purple, with an old gold-veined throat. Shown by Lord Melchett (Orchid-grower, Mr. A. Ruck), Melchet Court, Romsey.

Habenaria Lugardii.—An extremely interesting and distinct Orchid collected in the Congo region. The leaves are large, flat, wide and spread out at the ground level. The flower stem is about eighteen inches high, erect, pale green, with lance-shaped, paper-like bracts. This bears a head of white and green flowers, each flower developing a slender, greenish-white, pendent spur fully eight inches long, transparent, and containing nectar or moisture that is parted at intervals by air, as in a thermometer when the mercury column is broken. Shown by Messrs. Sanders.

Laelio-Cattleya Cavalese var. Excelsa (*L.-C. Lustre* × *Cattleya Fabia.*).—In this charming variety the sepals and petals are of clear, bright mauve colour, and the large, rounded and waved lip is royal purple, shaded with ruby near the gold-veined throat. Shown by Messrs. H. G. Alexander, Ltd.

Brasso-Cattleya British Queen, Stonehurst var. (*B.-C. Digbyano-Mendelii* × *Cattleya Lord Rothschild*).—In this very attractive variety the flowers are of light, clear mauve colour, except for a large, soft yellow area in the throat, this colour shading into a diffused, whitish ring. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly.

Miltonia pulchra var. Enchantress (*M. William Pitt* × *M. Lycaena*).—A neat and beautiful hybrid with shapely flowers; the sepals and petals are deep rose colour, redder at the base and paling towards the tips. The wide lip has a well-defined, reddish-brown mask, with a band of white around it, the large apical part of the lip being soft rose, with white shading. Shown by Messrs. Charlesworth and Co.

Cattleya Gloriette var. The Node (*C. Tityus* × *C. Hardyana var. Warneri*).—A large and handsome variety, with rosy-mauve sepals and petals and a very big lip that is of rich, royal purple colour, with a golden, purple-veined throat. Shown by Mrs. Carl Holmes (gr. Mr. W. J. Penton), The Node, Welwyn.

Cycnoches Loddigesii.—A quaint old large-flowered species in which the male flowers are wide, deep dull green, mottled with darker green or brownish-green; the lip is greenish-white. Shown by Mr. C. S. Garnett, The Strand, Derby.

Challenge Cup Competitions.

The Schröder Challenge Cup, for the best group of Orchids staged by an amateur, was awarded to F. J. Hanbury, Esq. (gr. Mr. S. Barnes), who had a beautiful group, resplendent with rich colouring. It contained Miltonias and Cypripediums in variety; Laelio-Cattleya Ishtar, Brockhurst variety, very fine, and L.-C. Valencia, together with several Laelio-Cattleya seedlings of merit, and especially good specimens of Cattleya Thomasii and C. Muriel Henderson.

Three exhibits were staged in the competition for a group of Orchids on a space not exceeding sixty square feet, and the Challenge Trophy was deservedly awarded to R. Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly, whose group was tastefully arranged and contained excellent specimens of Vanda coerulea and V. Luzonica; Cattleya Thebes, Stamperland variety; various Odontoglossums and Cypripediums; Laelio-Cattleya Profusion, L.-C. P., Stamperland variety, L.-C. Mrs. Meda, L.-C. Walter Gott, and various other beautiful Orchids.

J. J. Joicey, Esq. (gr. Mr. J. Mackay), The Hill, Whitley, Surrey, was second, his best specimens being of Vanda coerulea, Cattleya Honoria, C. Hardyana, C. Moira and C. Eleanor var. alba; Laelio-Cattleya Senate, L.-C. Don Juan and L.-C. St. Gothard, and Brasso-Cattleya British Queen var. Admiration. The Rt. Hon. Lord Melchett (gr. Mr. W. Petty), Melchet Court, Romsey, who was third, showed Oncidium varicosum, Cattleya Fabia, C. Enid var. alba, C. Mendelii, C. Bowringiana and C. Hesperus; Laelio-Cattleya luminosa var. aurea and L.-C. Fame, with various Cypripediums in good condition.

Gus Mayer, Esq. (gr. Mr. R. Cottam), Wistler's Wood, Woldingham, Surrey, was the only exhibitor in the amateurs' competition for twelve Orchids. His specimens were of Mormodes Buccinator var. lutea aurea; Odontoglossum Zenon var. Isobel, Vanda coerulea and V. suavis; Cattleya Mantinii, Oncidium Forbesii, Vuylstekeara elatior var. Lord Rothermere, Cypripedium bellatulum, Sophro-Laelio-Cattleya Dora, Laelio-Cattleya Ivanhoe, Cattleya Portia and Oncidium varicosum var. Rogersii.

Groups.

Although the Orchid growers had to wait until the last of the Society's Autumn Shows, they rose magnificently to the occasion, with the result that, although the Orchids did not dominate the show, they were quite a big feature, and several grand groups were staged.

Messrs. Sanders showed a very extensive collection which embraced numerous types and varieties. Especially fine Cattleyas were C. Fabia vars., C. Majestic, C. Orietta, C. Brightness, C. President Wilson, the delicately coloured C. Prince John, and C. Mrs. Herbert Greaves. They had graceful Dendrobiums in variety; several splendid specimens of Oncidium bicallosum, O. tigrinum, the dainty O. ornithorynchum, and the giant-sprayed O. varicosum var. Rogersii. Odontoglossum grande and O. Catherine, and various Odontiodas were shown well, together with such Laelio-Cattleyas as L.-C. Fame and L.-C. Carmania var. Minnewater, and Brasso-Cattleya Crofutiana. Among interesting and rather uncommon subjects displayed in this fascinating group were Habenaria Lugardii, Vanda Kimballiana and V. Sanderiana, Brassavolla cordata, Masdevallia trochilus, Cirrhopetalum longissimum and C. Rothschildianum, Dendrobium eriaflorum, Pleione Wallichii, Doritis pulcherrima and Catasetum Gnomus var. They also staged numerous Cypripediums.

Another grand and very extensive group was that set up by Messrs. Charlesworth and Co., who made special features of Oncidium varicosum, and Odontoglossum crispum var. xanthotes, showing many grand specimens of these. They also showed Oncidium splendidum, O. Forbesii and O. Cebollita, in fine form, together with Brasso-Laelio-Cattleya Priapus, B.-L-C. Xanthea, B.-L.-C. Mercia; Brasso-Cattelya Penelope, B.-C. Alfred Dean, and Laelio-Cattleya Luminosa. Among Cattleyas, outstanding sorts were C. Falco and C. Hardyana. The above represent but a small selection from among the best of the Orchids shown by this famous firm.

Smaller than the two preceding exhibits, but equally as fascinating, was that staged by Messrs. J. and A. McBean, whose special feature was a grand specimen of Laelio-Cattleya Queen Mary, with four magnificent flower trusses, carrying fifteen blooms in all. Odontoglossums were also prominent in this group, among those noted being O. majesticum, O. Figaro, O. Ovidius, O. crispum, O. Laurentia, O. Olympus, O. plumptonensis and O. ardentissimum. Vanda coerulea was included, also Cymbidium Hanburyanum var. excellens and C. H. var. Ruby. Cattleyas included C. mirificum, C. aurea C. Daedalus and C. Princess Royal, while noteworthy Laelio-Cattleyas were L.-C. Serlotha, L.-C. Valencia, L.-C. Warrior, L.-C. Hassallii var. alba, L.-C. Profusion var. Laurentia, and L.-C. Serveno. There were several fine Brasso-Cattleyas, Miltonias and other Orchids in this interesting group, including many plants of the dwarf and brilliantly coloured Sophronitis grandiflora.

Cattleyas and Laelio-Cattleyas were specially prominent in the group set up by Messrs. H. G. Alexander, Ltd., who also had many fine specimens of Oncidium varicosum var. Rogersii in the background. Prominent Laelio-Cattleyas included L.-C. Hilary, L.-C. Berenice, L.-C. Cavalese, L.-C. Queen Mary var. Gloriana, L.-C. Hilary var. Majestica, L.-C. Moloch var. Vesuvius, and L.-C. Ishtar var. sanguinea; while specially good Cattleyas were C. Fabia, C. Dragon, C. Dorothy Tucker and C. Princess Royal. They showed a good specimen of Zygopetalum Mackayi and numerous Cypripediums.

Messrs. Cowan and Co., besides showing Cypripediums in variety, had attractive specimens of Vanda coerulea, Odontoglossum grande, Coelogyne Mooreana, and various Cattleyas, including C. Daedalus, C. Gloriette, C. Ardens, C. Lady Veitch, C. Snowdon, C. Priscilla var. alba, C. Mantinii and C. Desdemona. Laelio-Cattleya Canberra was also worthy of note.

An extremely attractive group was set up by Messrs. Stuart Low and Co., who included many grand Laelio-Cattleyas, notably L.-C. Alex, L.-C. Cantab, L.-C. Crowborough and L.-C. Mrs. Meda. Grand Cattleyas included C. Gatton Ruby, C. intertexta var. alba, C. Arnaeus, C. Xanthus, and C. amabilis var. alba, while this beautiful Brasso-Cattleya British Queen, B.-C. Minerva and B.-C. General French, were also very fine. Cypripediums in variety were included, together with Oncidium Lanceanum and O. bicallosum, Phalaenopsis Esmeralda and Stanhopea occulata.

Messrs. Sutton Bros. staged a small but choice collection of various Orchids, as also did S. G. Brown, Esq., Brownlands, Shepperton, who had, among others, good flowering specimens of Epidendrum vitellinum, Oncidium varicosum var. Rogersii, O. pulvinatum and O. grande; Maxillaria lepidota, Selenipedium macrochilum. Mormodes Buccinator and other choice subjects.

Mr. J. Evans showed numerous good Orchids, including a fine specimen of Epidendrum vitellinum var. majus, Miltonia Bleuana var.

gigantea, Vanda coerulea var. regalis, Cypripedium Maudiae, Odontioda Euterpe and Oncidium varicosum var. Rogersii.

In the charming group set up by E. R. Ashton, Esq. (gr. Mr. C. V. Kent), Broadlands, Tunbridge Wells, outstanding and interesting sorts included Brasso-Laelio-Cattleya Mercia, Broadlands variety; Laelio-Cattleya Profusion, L.-C. Cavalese, L.-C. Sofrana and L.-C. luminosa var. citrina; a grand specimen of Stenoglottis fimbriata with seven graceful flower spikes; the richly coloured Lowiara insignis, various Cypripediums, and several other good sorts. A very interesting collection.

Messrs. Harry Dixon showed Cypripediums in variety, together with Odontoglossum amabile, Cymbidium Orion, Pleione Lagenaria, Cirrhopetalum ornatissimum and various Cattleyas and allied genera.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. Arthur Turner, Mr. James B. Riding, Major George Churcher, Mr. W. B. Gingell, Mrs. Ethel M. Wightman, Mr. C. F. Langdon, Mr. J. T. West, Mr. Courtney Page, Mr. R. Findlay, Mr. B. Long, Mr. Hugh Dickson, Mr. William Howe, Mr. D. B. Crane, Mr. Charles E. Pearson, Mrs. Helen Lindsay Smith, Mr. G. W. Leak and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. E. A. Bowles, Mr. G. Reuthe, Mr. W. Irving, Mr. Amos Perry, Mr. L. R. Russell, Mr. A. Bedford, Mr. Reginald Cory, Mr. Mark Fenwick, Mr. E. H. Wilding, Mr. Hiatt C. Baker, Mr. T. W. Taylor, Mr. F. G. Preston, Mr. T. Hay, Mr. G. Yeld, Sir William Lawrence, Bt., Miss E. Willmott and Mr. N. K. Gould, Secretary.

Awards of Merit.

Chrysanthemum Arabella.—A market-sized Japanese variety with broad florets of pinkish-mauve colour.

C. Dazzle.—A highly decorative Pompon Chrysanthemum which, although, perhaps, a trifle larger than satisfies the critical, has great garden value. The colour is a light crimson-maroon which pases to a dark old-rose colour and the tips of the florets become yellow.

C. Florence Bigland.—A good market-sized Japanese variety of rich golden-yellow colour. The above varieties were shown by Mr. H. Shoesmith, junr.

C. Red Cavell.—This is an incurving Japanese variety of exhibition size, made up of broad florets of bright chestnut colour and a golden reverse. Shown by Messrs. Keith Luxford and Co.

Cotoneaster multiflora var. callicarpa.—Although the award was given to this as a berried shrub, it is also very attractive when in flower during the late spring and early summer. It is of graceful habit and bears small, ovate leaves and free clusters of large, dark red fruits. Shown by Sir William Lawrence, Bart., Burford, Dorking.

Euonymus lancifolia.—This handsome Spindle Tree was densely set with pale rose-coloured fruits which contained scarlet seeds. Shown by the Director, Royal Gardens, Kew.

Gladiolus sp.—The award is subject to the species being named. A long spike bearing twenty-four fully expanded, medium-sized, soft pink-coloured flowers, which have a narrow carmine line on each of the two lower segments, was shown by Collingwood Ingram, Esq., Bevenden.

Gordonia axillaris.—The tender shrub shown under this name bore several large white flowers very suggestive of those of a Romneya. The flowers, which were solitary or in pairs, measured nearly six inches across, and had handsome clusters of rich golden stamens. The long, stout leaves are oblong-lanceolate and lightly serrated. Shown by Major L. Johnston, Campden.

Taxus baccata fructu-luteo.—This form of the common Yew bears large, pale orange-coloured fruits which are very attractive. Shown by the Director, Royal Gardens, Kew.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. J. Cheal, Mr. W. H. Divers, Mr. E. Beckett, Mr. A. Poupart, Mr. W. Poupart, Mr. H. V. Taylor, Sir W. Lobjoit, Mr. A. W. Metcalfe, Mr. E. Neal and Mr. A. N. Rawes, Secretary.

Many seedling Apples were exhibited before this Committee but none was considered an improvement on existing varieties, although it was suggested that a seedling Cox's Orange Pippin, shown by Mr. A. Worsley, Isleworth, be sent to Wisley for comparison.

Group.

Sir Mayson Becton (gr. Mr. K. W. Kent), Highlands, nr. Weybridge, showed excellent fruits of Apples and Doyenné du Comice Pears, grown on the "poor soils of the St. George's Hill district, Surrey."

⁂ The report of this show will be concluded in our next issue.

READING GARDENERS.'

There was an excellent attendance at the fortnightly meeting held on Monday, October 7. The lecturer was Mr. C. Cook, gardener to Mr. A. C. Bartholomew, Tilehurst Road, Reading, and his subject was, "The Propagation of Alpines and Rock Plants." He gave most useful and valuable hints on soils, and quite an original talk on the raising of these most beautiful and interesting plants from seeds, cuttings and divisions. The principal genera dealt with were Alyssum, Arabis, Arenaria, Dianthus, Daphne, Gentiana, Geranium, Lithospermum, Lychnis, Phlox, Saxifraga, Silene and Violas.

An interesting discussion followed, sustained by Messrs. Young, Reed, Howlett, Balcombe, Cox, Goddard and Broomfield. At the close a very hearty vote of thanks was passed to Mr. Cook on the proposition of Mr. F. Townsend, who referred to the valuable information given by the lecturer.

In the competition for three vases of early-flowering Chrysanthemums, distinct, the first prize was gained by Mr. E. Blackwell, The Gardens, Foxhill, Reading, the second by Mr. H. Goodchild, The Gardens, Queen Anne's School, Caversham, and the third by Mr. W. Brinsdon, The Gardens, Mount Warren, Mapledurham. For three vases of Michaelmas Daisies, distinct, Mr. F. Haines, The Gardens, Calcot Hanger, was successful in gaining the first prize, and Mr. H. G. Cox, Hamilton Road, Reading, followed closely for second prize.

In the non-competitive section, an Award of Merit was granted to Mr. W. Hullcoop, Peppard Road, Caversham, for a pretty exhibit of Roses. For so late in the season, there were two excellent lots of Sutton's Prizewinner Runner Beans. One was exhibited by Mr. A. W. Gower, The Gardens, Calcot Grange, who had been picking from the same row since the second week in June, and the other by Mr. H. Goodchild, who has been picking since the commencement of July. The Beans averaged fourteen inches in length.

AUSTRIAN HORTICULTURAL.

As usual, the occasion of the annual autumn fair in Vienna was also that of the horticultural exhibition, which was in no way behind its predecessors, and in many ways marked an advance. Formerly, in the part under cover, Dahlias, hardy plants and pot plants have greatly predominated, but Cacti are now coming more and more to the front. Indeed, so great is the demand for these plants, and so eager the response on the part of the growers, that it is to be hoped that the demand will continue to increase, otherwise the supply will be found to be excessive. Hardy plants also enjoy an ever-increasing popularity in Vienna, and the same may be stated of Dahlias and Roses.

The exhibition halls were beautifully decorated and arranged. At the entrance was the Dahlia display of the firm of Wilhelm Debor, which has the same position every year but knows well how to create variety in the staging. The two pavilions between which the Dahlias were displayed were this year occupied, the one by the garden plans and the other by the vegetable group of the local Gardeners' Union. The Hollandia Nurseries showed Conifers which, though in excellent condition, showed signs of the hard winter through which they had come. Close by were the rock gardens, among which was noted one from the Hortensium girls' and boys' school. An interesting, although somewhat melancholy, display was that of the landscape gardener appropriately named W. Sterba, of Atzgersdorf; in half-circle formation was a number of graves, tastefully and artistically decorated.

In the open was a well-arranged group of succulent plants from the well-known firm of Leopold Dücke, opposite a fine collection of Palms shown by the Vienna municipality, which also had a pretty garden adorned with various flowers and flanked by a brick wall. This group, with the Dahlia collection of Debor and the hardy plant garden of the firm of Strauss, Windmühlhöhe, represented the best features of the open-air portion of the exhibition. Much interest was shown in a so-called "week-end" garden, complete with hardy plants, espalier fruit trees, pool, and seats, shown by the landscape firm of Otto Trenkler.

Dahlia novelties were a feature of the exhibition, and among others shown by the firm of Rath, were Frau Jety Walter (bluish Show Dahlia, with some white), and Sapanow (blood-red); by Pospischil an unnamed strawberry-coloured variety, of the form of Andreas Hofer, and a variety named Johann Strauss, a yellow Show Dahlia of great durability.

CARDIFF GARDENERS'.

The first fortnightly meeting of the above Association was held on October 1, at the Queen's Hotel, Cardiff, Mr. W. H. Puyce being in the chair. An expression of regret was passed by all members standing, at the death of one of the oldest and original members of the Association, Mr. R. Mayne, who had passed away after a severe illness.

The lecturer for the evening was Mr. Wilfrid Evans, of the Hardy Plant Nursery, Llanishen, whose subject was "Some Plant Peculiarities." Among native plants the lecturer brought to notice were the common Primrose, Sundew, the Field Orchids and Arums; while garden flowers he mentioned included the Salvias, Figwort and Burning Bush.

Prizes were offered for collections of nine Roses. Mr. J. Jones secured the first prize, Mr. Wilkins, second, and Mr. Folm, third. For a vase of early-flowering Chrysanthemums, the first prize was won by Mr. W. Webber, while Mr. J. Jones showed the best vase of garden flowers.

WIMBLEDON GARDENERS'.

The first meeting of this Society's session for 1929-30, took place at Queen's Hall, Wimbledon, on October 9. The hall was crowded, every seat being occupied. Mr. A. Hosking, of the John Innes Horticultural Institution, Merton Park, presided, and introduced the lecturer, Mr. William Cross, to the members.

Mr. Cross announced that his subject was to be "Flowers and Their Servants." The lecture was beautifully illustrated by a large number of lantern slides consisting of many coloured and black and white photographs, as well as diagrams. As the lecture proceeded the audience sat spell-bound, and at the conclusion gave Mr. Cross a great ovation. Mr. W. Price, in a neat little speech, proposed a vote of thanks, emphasising the fact that every detail of the lecture was perfectly plain. This was carried by acclamation, and after the Chairman had announced that Mr. J. Coutts, Assistant Curator, Royal Gardens, Kew, would, on October 23, lecture on "Roses," the meeting closed.

Obituary.

Jules Daveau.—We note, in the October issue of our French contemporary, *La Revue Horticole*, an announcement of the death on August 24, at the Montpellier Botanic Garden, of M. Jules Alexandre Daveau, Curator of the garden since 1893. He began his career at the age of fourteen, in 1866, in the Paris Botanic Garden, where he eventually became head of the seed laboratory and experimental garden. He then travelled abroad, becoming in 1876 Director of the municipal Botanic Gardens of Lisbon, where he gained considerable distinction. He was a prolific writer in the horticultural and scientific press, and was a correspondent member of the Lisbon Scientific Academy. He had received a number of honours, including the ranks of Officier de l'Instruction Publique, Officier du Mérite Agricole, and Commandeur du Christ du Portugal.

Gilbert Martin.—We learn with regret of the recent death of the veteran French horticulturist, M. Gilbert Martin, of Digoin (Saône-et-Loire), at the advanced age of eighty-four years. He was the originator of the now well-known race of Star Dahlias known as Etoile Digoinaise; the nursery is being efficiently carried on by his eldest son, M. Louis Martin, who succeeded to the management of the business on the retirement of his father.

ANSWERS TO CORRESPONDENTS.

Clapp's Favourite Pear.—*H. W.* It is a general complaint against Clapp's Favourite Pear that it decays at the core. The fruits should be eaten so soon as gathered, and should be gathered at intervals before they become yellow, otherwise they speedily decay. Give the tree a good dressing of old lime-rubble and point it well into the soil.

Codiaeum Leaves infested with Scale.—*W. G. B.* Your Codiaeums (Crotons) are badly infested with freshly emerged nymphs of the brown scale, Lecanium hesperidum. Both surfaces of the leaves should be sponged with a one per cent. solution of Volck. The cause of the dying-back and brown spotting of the foliage is due to some error in cultivation, such as the amount of water received at the roots, and overhead syringing during the cooler and cloudier weather recently experienced. Careful attention should be given to the water requirements of these plants in order to preserve a correct balance between roots and leaves.

Coloured Bean Pods.—*L. W. C.* The Waxpod and Golden Butter Beans frequently sport and give pods of different hue; if Black Striped and Waxpod are grown together, and cross fertilised by hand, the resulting seedlings give red-marked pods. One of our correspondents has selected no fewer than eight distinctly coloured forms and these now appear to be fixed.

Erecting Greenhouses.—*J. E. W.* Greenhouses for the cultivation of plants should be run from north to south.

Lily-of-the-Valley Diseased.—*K. L. J.* The Lily-of-the-Valley plants have been killed by the fungus Botrytis cinerea. All infected plants should be destroyed and the bed remade, adding well-decayed leaf-mould. Water the ground with Cheshunt compound before planting and again in spring. Dust the crowns with flowers of sulphur prior to planting.

Melons Unhealthy.—*A. C. W.* The leaf sent was completely dry on arrival. Your trouble may have been caused by an excess of water and atmospheric moisture, and too little ventilation after the fruits were set and swelling; or it may have been due to lack of bottom-heat towards the finish. A brisk bottom-heat should always be maintained at this stage, and tepid water only given in reduced quantities. The other leaf sent is that of a Hoya, possibly H. carnosa, the species most frequently grown.

Names of Fruits.—*T. S. D.* 1, Queen; 2, and 6, Bismarck; 3, Lord Derby; 4, unknown; 5, Warner's King; 7, probably Dr. Hogg, but stem broken off in packing.—*B. M. W.* 1, Comte de Lamy; 2, both fruits decayed; 3, Louise Bonne of Jersey 4, send better specimens when in season; 5, Cox's Pomona; 6, Farleigh Damson.—*E. M.* 1, Ribston Pippin; 2, Small's Admirable.—*H. W.* 1, Schoolmaster; 2, Small's Admirable; 3, Rhode Island Greening; 4, not recognised; 5, Pear No. 2, Broompark.—*C. A.* 1, Rosemary Russet; 2, James Grieve; 3, Yorkshire Beauty.—*E. G.* 1, Fearn's Pippin; 2, Allington Pippin; 3, probably Byford Wonder; 4, Winter Majetin; 5, Lane's Prince Albert; 6, possibly Lord Rosebery; 7, Minchull Crab; 8, Rymer; 9, Blenheim Pippin; 10, Catillac; 11, Magnate; 12 and 18, Pitmaston Duchess; 13, Triomphe de Jodoigne; 14, Dumelow's Seedling; 15, Beauty of Kent; 16, Winter Hawthornden; 17, Durondeau; 19, Maguate; 20, probably Beurré Baltet Pére; 21, Marie Louise; 22, not recognised, send when in season; 23, Brown Beurré; 24, Beurré Bachelier; 25, Louise Bonne of Jersey; 26, Souvenir de Congres.—L. E. Apparently Black Hamburgh, but fruits were too badly damaged to permit of proper identification. —*G. C.* Red, Worcester Pearmain; green, Dumelow's Seedling.—*A. D. H.* Mank's Codlin.—*W. C.* Your fruit was too perished to be recognised.—*A. H. D.* Your fruit arrived completely smashed.

Names of Plants.—*J. E. I.* Stag's Horn Sumach, Rhus typhina.—*A. and M.* Sedum reflexum.—*G.* 1, Aster hybrid, impossible to name without seeing plants, as flowers were withered; 2, Epilobium, probably E. angustifolium; 3, Aster hybrid (see No. 1); 4, Colchicum, probably C. speciosum var. album, flower rotten; 5, Crocus speciosus var.; 6, Aster Climax; 7, Clematis globosa.—*C. E. M., Hunts.* A form of Nicotiana sylvestris.—*R. M.* Nicotiana rustica var.—*J. C.* Cypripedium barbatum; 2, not recognised; 3, Lycaste aromatica; 4, Cypripedium cardinale.—*G. C.* A garden variety of Wallflower (Cheiranthus). *H. B. S.* 1, Veronica Guthriana; 2, Campanula pusilla; 3, Sedum spurium; 4, Cotyledon simplicifolia; 5 and 7, Sedum rupestre; 6, Dianthus deltoides var.; 8, Saxifraga cuneifolia; 9, Sempervivum arachnoideum var.; 10, Androsace species, send in flower; 11, Ajuga reptans var. atropurpurea; 12, Antennaria dioica. —*A. T. J.* Sedum anopetalum, D.C., South Europe.—*J. B.* Araujia sericifera (syn. Physianthus albens).—*C. T.* Your specimen is the ordinary Quince.—*A. C. W.* 1, Tillandsia species, cannot name without flowers; 2, Hibiscus syriacus var.; 3, Liriope spicata var. variegata; 4, Origanum Majorana.—*R. L. H.* Gleditschia triacanthos, "Honey Locust." *A. J. B.* Linaria vulgaris.—*F. F.* 1, Aegle sepiaria; 2, Tecoma species; send when in flower.—*A. J. S.* Achillea filipendulina.—*C. H. P.* Jacobinia carnea. *H. B.* Ophiopogon Jaburan var. variegatus.—*W. S. Woking.* Diosma ericoides.

Popular Pink-flowered Mesembryanthemum.—*J. C.* It is possible that you refer to the pink form of the Ice Plant, M. crystallinum. M. cordifolium, with red flowers, is frequently grown.

Potato Scab.—*A. S. G.* The eruptions on the Potato are due to an attack of common or brown scab. This disease is particularly prevalent on sandy and gravelly soils, and also in alkaline conditions. The addition of grass-mowings has given good results. They should be dug in immediately prior to planting, at the rate of a barrow-load to four square yards. Dress the ground with superphosphate of lime and sulphate of ammonia in spring. Avoid planting diseased sets, and refrain from throwing the peelings from infected tubers on the manure heap.

Seedling Pear.—*Pear Pip.* We are interested to see the two Pears from the tree you have grown from a seed. As these are not yet ripe we cannot test them, but have put them in store and will let you have our opinion when they ripen.

Treatment of Winter-flowering Begonias. —*J. C.* This subject was dealt with in our issue for October 19, p. 300.

Treatment of Brassicas for Club Root.—*W. J. S.* As your ground would appear to be badly infested with club-root, and the application of quick-lime has not proved effective in preventing infection of your present crops of Brassicas, we suggest that in future you treat your plants from the seedling stage up with mercuric chloride (corrosive sublimate) which has been found to effect a good measure of control over this scourge. Sterilise all seed-beds of Brassicas, Wallflowers, etc., by watering the soil thoroughly with a solution of one ounce of mercuric chloride (use only finely-powdered material and, when purchasing it, do not confuse it with insoluble calomel or "mild mercuric chloride") in six gallons of water. Ten days after germination has taken place, water the seedlings with a solution of one ounce in fifteen gallons of water (on heavy soils one ounce in ten gallons is best), and repeat this application a few days previous to planting. When planting, dip the seedlings for a period of one minute in a solution of one ounce in ten gallons of water. In all cases, apply enough solution to thoroughly wet the soil about the roots of the plants. Corrosive sublimate is deadly poisonous and should be handled with extreme care.

Veronica rupestris v. V. prostrata.—*K. and S.*—There is considerable confusion and disagreement over the nomenclature of these Veronicas, but we see no reason for the R.H.S. stating that V. prostrata (your plant) is a misnomer for V. rupestris. The *Index Kewensis* gives V. rupestris and V. prostrata as distinct species, but in the Kew *Hand-List of Rock Garden Plants* no mention is made of V. rupestris, and V. prostrata is given as a good specific name. The late Reginald Farrer also regarded V. prostrata as a genuine species (*English Rock Garden*). He stated that it is not the same as the plant which passes under the name of V. Teucrium var. prostrata, or under the false name of V. rupestris. Consult Farrer's description of V. prostrata, it may assist in identifying your plant.

Vine Leaves Scorched.—*A. R.* The scorching of vine leaves is generally due to imperfect ventilation during the early stages of growth, when the house is heavily charged with moisture. The leaves are thin in texture for those of young vines, and suggest you have withheld or reduced your watering too soon, and this has caused premature ripening of the leaves, especially in a season like the present. Give a dressing of sulphate of potash this winter, at the rate of two ounces to the square yard; pay careful attention to ventilation next season, and see that the vines do not suffer from lack of water during the late part of the growing season.

Wallflowers with Club-root.—*I. C.* If your soil is contaminated with club-root fungus, which causes wart-like swellings or nodules on the roots of most Cruciferous plants, refrain from planting Wallflowers on the infected land, and give a good dressing of quick-lime. Mercuric chloride (corrosive sublimate) is stated to give a good control of club-root. The soil of the seed-bed should be sterilised by watering it before the seeds are sown with a mercuric chloride solution (one ounce in six gallons), and ten days after germination water the seedlings with a solution of one ounce in ten gallons. Repeat this application seven days later, and again just previous to planting. When planting, dip the seedlings for one minute in a solution of one ounce in ten gallons. (See "Treatment of Brassicas for Club Root," above).

Communications Received.—L. B. C.—A. E.—M. W.—J. S. B.—T. W. B.—K. T.—W. L.

MARKETS.

COVENT GARDEN, Tuesday, October 22, 1929.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	30 0–36 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	18 0–24 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0

	s. d. s. d.
Erica gracilis, per doz. ...	24 0–30 0
— nivalis, per doz.	24 0–36 0
— the above in 60's, per doz.	12 0–15 0
— the above in thumbs, per doz. ...	8 0—9 0
Marguerites, white, per doz.	15 0–18 0
Nephrolepis, in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's per tray of 15 ...	2 6—3 0
Solanums, per doz. ...	15 0–18 0
—60's, per doz.	9 0–10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Acacia (Mimosa), per bun. ...	1 0—1 6
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	7 0—8 0
Arums (Richardias), per doz. blooms	6 0—9 0
Asparagus, plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „ ...	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 3—1 6
—short „ ...	0 6—0 9
Camellias, white, per doz. ...	3 0—3 6
Carnations, per doz. blooms...	2 6—4 6
Chrysanthemums, bronze, per doz. blooms...	1 6—5 0
—white, per doz. blooms ...	1 6—5 0
—yellow, per doz. blooms...	2 0—5 0
—pink, per doz. blooms ...	2 6—5 0
—bronze, sprays, per doz. bun.	6 0–15 0
—white, sprays, per doz. bun.	6 0–15 0
—yellow, sprays, per doz. bun.	9 0–12 0
—pink, sprays, per doz. bun.	9 0–15 0
—large specimen blooms, per doz.	9 0–12 0
—single, disbudded, per doz. blooms	3 0—4 6
— — spray, per doz. bun. ...	12 0–18 0
Cornflowers, blue, per doz. bun.	3 0—3 6
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0

	s. d. s. d.
Foliage—	
Ampelopsis leaves, per doz. bun....	4 0—6 0
Hardy foliage, in variety, per doz. bun.	4 0–12 0
Forget-me-nots, per doz. bun.	9 0–10 0
Heather, white, per doz. bun.	— 12 0
Lilium longiflorum, long, per bun. ...	4 0—6 0
—auratum, per doz. blooms .	5 0—6 0
Lily-of-the-Valley, per doz. bun.	24 0–30 0
Marigolds, per doz. bun. ...	1 6—2 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0–42 0
—Cypripediums	9 0–18 0
Physalis, per doz. bun. ...	12 0–18 0
Roses, per doz. blooms—	
—Columbia ...	2 6—3 6
—Richmond ...	2 0—3 6
—Yellow ...	2 0—3 6
—Molly Crawford	1 6—2 6
—Mad. Butterfly	2 0—3 6
Scabiosa caucasica, per doz. bun. ...	3 0—5 0
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	5 0—6 0
Stocks, double white, per doz. bun.... ...	4 0—6 0
Violets, single, per doz. bun.	2 0—4 0
—Parma, per bun.... ...	2 6—3 6

Remarks.—Chrysanthemums have been arriving in very large quantities and greatly exceeded the requirements on Saturday morning. All the outdoor blooms are now very poor in quality and difficult to clear. Carnations have shown a slight increase, but prices remain steady for good quality blooms in addition to some very good seedling varieties. The most prominent sorts are Delight, Brilliant, Eileen Low, Favourite, Circe (mauve), Hanworth Pink, Laddie, Mrs. Ward, Topsy, Spectrum, Wivelsfield White, Ivory White, and various Fancy varieties. Among Roses, white sorts are the poorest in quality. Pink, red and yellow blooms are arriving in excellent condition. Lilium longiflorum is advancing in price owing to more limited supplies; L. speciosum var. rubrum is more plentiful, with L. auratum much shorter. Arums (Richardias) are finer in quality and should be more plentiful from now onwards. Cornish Anemones and Violets are increasing in quantity almost daily, the present weather conditions being favourable to the transit of all blooms from this quarter. The first consignment of French Parma Violets arrived last week, but the Carnations from the same source were practically unsaleable on arrival. Acacia (Mimosa), Solanum berries, Chilies, Ruscus, Berberises, and Myrtles are also on sale in the French department.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—Cox's Orange Pippin, tray	4 0—8 0
—½-bushel case	6 0–12 6
—Worcester Pearmain, per bushel case...	10 0–14 0
—Bramley's ...	4 0—8 0
—Derby ...	3 0—6 0
—Jonathan ...	12 0–13 0
—Charles Ross, per tray ...	6 0—8 0
—Rival, per tray	3 0—4 0
—per ½-tray ...	3 0—4 0
—Warner's King, per bushel ...	4 0—7 6
Apples—	
—Nova Scotian, Cox's Orange Pippin, ½-barrel	20 0–30 0
Bananas, per bun.... ...	11 0–19 0
Grapes, English—	
—Alicante ...	1 0—2 6
—Gros Colmar	1 6—3 0
—Muscat of Alexandria ...	2 0—5 0
—Canon Hall...	2 0—6 0
—Black Hamburgh, per lb.	1 0—1 6

	s. d. s. d.
Grape Fruits ...	30 0–35 0
Lemons, per case—	
—Messina ...	14 0–25 0
—Naples ...	24 0–35 0
Melons, each ...	1 6—4 0
Nectarines, per doz.	4 0–18 0
Nuts, Cob, per lb.	0 6–0 6½
Oranges—	
—Cape Navels, per case ...	18 0–21 0
—Valencia ...	12 0–15 0
—Brazilian ...	12 0–14 0
Peaches, per doz.	6 0–18 0
Pears, English—	
—Pitmaston Duchess ...	4 0—8 0
—Buerré Hardy, per ½-sieve ...	4 0—8 0
—Doyenne du Comice, per doz.	2 0—6 0
—Fertility ...	3 0—6 0
—Conference, per ½-sieve ...	3 0—6 0
—Californian—	
—Buerré Hardy	20 0–22 6
—Doyenne du Comice, per ½-case	12 0–14 0
Pineapples, case	21 0–36 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, French, per pad ...	— 4 0
—Guernsey, per lb.	0 8—1 3
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-sieve ...	3 0—5 0
Cabbage, per doz.	2 0—2 6
Carrots, per ½-bag, washed	4 0—6 0
Cauliflowers, flat, per doz. ...	2 6—5 0
Endive, French, per crate, 18's and 24's ...	5 0—6 0
—Batavia, per crate ...	4 0—6 0
Lettuce, Cabbage, 18's, 24's ...	2 0—3 0

	s. d. s. d
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	2 0—2 6
—broilers ...	1 3—1 6
—field, per lb.	0 6—1 0
Parsnips, per cwt. ...	4 0—5 0
Peas, bushel ...	18 0–20 0
Potatos, cwt ...	3 0—6 0
Tomatos, English, per box. of 12 lbs.—	
—pink... ...	4 0—7 0
—pink and white	4 0—7 0
—white ...	3 6—4 6
—blue	— 4 0
—Guernsey ...	3 0—4 0
—Jersey ...	2 6—3 6
—Canary Island	16 0 20 0
Turnips, per doz. bun.... ...	4 0—6 0

Remarks.—Business conditions in the market during the past week have not been good, and although the volume of produce available has been comparatively small, prices all round, with few exceptions, are moderately low. In the hothouse Grape section, as compared with last week, there is just a shade of improvement, and the enquiry for best Peaches is moderate. In the orchard fruit sections, trade has been on the slow side, but at the time of writing there is a better tendency in the demand for good dessert Apples, while business in the cooking Apple section remains slow, except for a few parcels of top grade fruits. Hothouse Beans, after a very quiet time, are showing a slight advance in prices, in spite of the competition of Beans from Madeira. A few hothouse Potatos are selling fairly well, and a little more keenness is noticeable in the demand for new Potatos from the Azores. Mushrooms, both cultivated and field, are moderately plentiful and reasonable in price. The trade for English Tomatos is much firmer and good examples are now selling at firm prices. The green vegetable market is also showing more "life" and prices of most vegetables are now at a satisfactory level. Some Asparagus from Paris, although rather expensive, is meeting a fairly good enquiry. Salads are a good trade, and the Potato market continues on a more stable level, so far as prices and demand are concerned.

GLASGOW.

Supplies exceeding the trade demand brought about a sharp reaction in prices of Chrysanthemums last week. Cut blooms and sprays from English and Scottish growers were abundant, particularly on Friday, when varieties of the spray class were sold freely at 1d. and 2d. per bunch, while better quality sprays made up to 6d. Disbudded blooms were worth the following prices:—Pink Consul and White Thorpe, 1s. 3d. to 1s. 10d. for 6's; Le Pactole, 1s. to 1s. 9d.; Bronze Consul, 1s. 3d. to 1s. 6d.; Cranford Yellow, 1s. to 1s. 6d.; Debutante, Holicot Yellow and Holicot Bronze, 1s. to 1s. 3d.; Almirante and Sanctity, 8d. to 1s. 3d.; and Dolores, 8d. to 1s. Carnations ranged from 2s. to 3s. per dozen; pink Roses, 2s. to 3s. 6d.; and red, 1s. to 2s. 6d.; Richardias, 2s. 6d. to 3s. 6d. per bunch; Lily-of-the-Valley, small, 6d. to 1s.; large, 2s. to 2s. 6d.; Dahlias, 4d.; Michaelmas Daisies, 4d. to 6d.; and Calendula, 2d.

In the fruit market an increasing business was done in American Apples at easier prices, as follows:—Wealthy, 15s. per case; McIntosh Red, 16s. to 18s.; Jonathan, 14s. to 17s.; and Grimes' Golden and David, 13s. to 14s. On the other hand barrels of Wealthy advanced sharply to 30s. to 40s.; while King of the Pippins at 30s. to 33s., and Gravenstein at 25s. to 26s., were steady. Doyenné du Comice Pears averaged 15s. per half-case and 27s. per case; Beurré Hardy, 13s. 6d. per half-case; and Winter Nelis, 26s. per case. Damsons realised 4d. to 5d. per lb.; Blackberries, 5d.; Plums, 2d. to 3d.; English cooking Apples, 11s. to 12s. per half-barrel; Gros Colmar Grapes 3s. 6d. per lb.; Alicante, 2s. 6d.; Black Hamburgh, 2s.; and Dates, 10s. to 11s. per dozen cartons.

Tomatos varied very much in quality, and while the produce from some growers sold at 6d. to 8d., selected fruits made 11d. Guernsey Beans were quoted at 1s. per lb.; field Mushrooms, 1s. to 1s. 6d.; cultivated, 3s.; Cauliflowers, 4s. to 7s. per dozen; Cucumbers, 6s. to 7s.; Lettuces, 2s. to 2s. 6d. per box; Leeks, 7d. per bundle; and Brussels Sprouts, 5s. per 20 lbs.

GARDENING APPOINTMENTS.

Mr. Allan Falconer, for the past seven years gardener at the Cheadle Royal Mental Hospital, Cheadle, Cheshire, as Parks Superintendent to the Stamford Park (Joint) Committee, Ashton-under-Lyne and Stalybridge Corporations. [Thanks for 2/- for R.G.O.F. Box.—Eds.].

Mr. Edwin Mason, for the past seven years deputy-gardener at the Cheadle Royal Mental Hospital, Cheadle, Cheshire, as gardener at the same place, in succession to Mr. A. Falconer. [Thanks for 2/- for R.G.O.F. Box.—Eds.]

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the Official *Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

30,406.—Asiatic Petroleum Co., Ltd., and Richardson, A. W.—Apparatus for spraying insecticides, etc. October 7.

30,576.—Cottell, R. W., and Liddiard, C.—Pruner for shrubs, etc. October 9.

30,363.—Drawing Office Supplies, Ltd., and MacNeill, N.—Material for increasing growth of plants and preventing growth of weeds. October 7.

30,852.—Harris, C. H.—Iron supports for trees. October 11.

30,403.—Soc. Chimique de la Grande-Paroisse, Azote et Produits Chimiques.—Compound fertiliser. October 7.

Specifications Published.

320,084.—Ferguson, H.—Tractor-drawn agricultural implements.

320,146.—Laar, W. Van.—Hand-lever for controlling the engagement and disengagement of the cutting mechanism of grass-mowing machines.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

Abstract Published.

A new hoe recently patented by Keep Macpherson, Ltd., of 252, George Street, Sydney, Australia, under No. 317,779, has the advantage that once the handle is fixed there is no possibility of the twisting round when in use, no matter how hard the tool may be used or how hard the ground may be. The haft socket of a hoe is made with arcuate end walls, and with parallel straight side walls. The curved shoulders of the blade are integral with the socket and encroach upon it for approximately half its length. All the walls of the socket taper from the bottom to the top, and the upper and lower faces of the socket are set at different angles to the blade. In modifications the shoulders may be straight, and the orifice of the socket may be rectangular.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 47·0°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, October 30, 10 a.m. (Greenwich time). Bar. 29·9. Temp. 52°. Weather, Overcast.

Plant Life and Length of Day.

To what extent the length of a man's days is determined by hazard, heredity or environment has often been the subject of conjecture, but never of exact estimation. But we are further advanced with respect to our knowledge of plants, and are already in a position to show that the length of life of a plant is quite distinctly influenced by environmental factors; and that not merely by the obvious ones such as excessive heat and cold, drought and moisture, light and darkness, but by much more subtle ones as well. For example, as was shown some ten years ago by W. W. Garner and H. A. Allard, the length of a plant's days may be precisely determined by the length of the days in which its lot is cast. Be the day long, like Macbeth, some plants " begin to weary of the sun " and fail to come to floraison. Be the day short, there are plants which fail to get up sufficient speed of development to flower at all. Mr. Tincker, Keeper of the Laboratory at Wisley, who has already carried out numerous investigations on this subject—the influence of the length of day on flowering—has recently given us a further instalment[*] of his interesting researches. The account which he writes is, like the phenomena which he describes, somewhat involved, but the patient who will read it with care and attention will derive therefrom much valuable knowledge, and yet more food for creative thought. In proof of the statement already made that length of day may determine the length of the days of a plant, we may cite Mr. Tincker's observations on one of his " long day " plants, Phacelia campanularia. Seedlings sown in March and allowed to receive all the light they could get, got on nicely with the business of living and flowered and died in due course; whereas sister plants raised at the same time, but exposed only to a shortened day of twelve hours, were in no hurry to grow up, and were still in the vegetative stage three months after the plants which had suffered no curtailment of daylight had ripened their seeds and died. Nemophila insignis and Nigella damascena behaved in a similar manner. The last-named, sown in March and subjected to different light treatment in April, when they enjoyed the long days of later spring, elongated their flower stems in June and flowered in July, while others which were allowed only a twelve hours light pittance were still in the rosette stage when July came. On the other hand, Cosmos bipinnatus is a short day plant—as are ours, so are its days, " few and short." Give it long hours of daylight—and our hours of daylight in early summer reach so many as sixteen or even more—the Cosmos flowers but poorly, whereas, if its daily ration is one of twelve hours only, it flowers freely. Chrysanthemums are apparently also short day plants, daily light periods of twelve or even six hours accelerate flower production, whereas plants which receive the normal daylight of long summer days, although they grow taller, flower two months later. Plant physiologists are busily engaged in endeavouring to analyse this phenomenon, and have already made some progress; but much remains to be done before we can claim to understand these strange relations between length of day and plant development. Solomon who, as we know, was interested in plants, might have added to his list of puzzles which included the way of a ship in the sea . . . the way of a plant with the sun!

New Pavilion for Regent's Park.—Following the recent public appeal by Mr. George Lansbury, First Commissioner of Works, Mr. Louis Baron has promised to pay the cost of constructing a pavilion in Regent's Park as a memorial to his father, Mr. Bernhard Baron. The architects of the Office of Works are preparing plans to submit to Mr. Baron, and the pavilion will be for the use of boys and girls and others playing football, cricket, net-ball and other games in the park.

National Rose Society's Trial Ground.—A further extension has now been made to the National Rose Society's Trial Ground at Haywards Heath, and the raisers of new Roses are cordially invited to send plants of their new productions for trial in 1930. A minimum number of six plants of a dwarf variety, or two plants of a climbing or rambling variety, should be sent. Last year many raisers sent twelve plants of each new dwarf variety submitted, so as to give a fairer average trial. Raisers are assured that every attention possible will be given to any new varieties of Roses they may send. New Roses for trial should be forwarded addressed to Mr. Courtney Page, National Rose Society, Haywards Heath, Southern Railway, Sussex.

Timber Resources of the British Empire..—Mr. Fraser Story, in a contribution to *Svenska Skogsvärdsforeningens Tidskrift* (Stockholm, 1929, a 27, Vol. I, p. 85) on " Timber Supplies of the British Empire, with Special Reference to Softwoods," estimates the annual consumption of Coniferous timber in the British Empire at fifty-four millions c.m., of which Great Britain consumes 26·4 per cent., Canada 21·3, Australia 2·5, New Zealand, 1·6, South Africa 0·9, and the rest of the Empire 1·8. The home consumption of Canada is 21·3 millions c.m. and 33 millions are exported, eighty-six per cent. of this going to the United States. Canada's Coniferous resources are estimated at 5,000 millions c.m., but of this only 2,830 millions are accessible, The United States exports four times as much Coniferous timber annually as the growth; in Sweden, Finland and the Baltic countries a growth equal to exploitation is relied upon. The net annual growth of Coniferous timber in exploitable areas is only about forty-five millions c.m., while the exploitation is ninety-six millions. Mr. Fraser Story regards the recent estimate of accessible Coniferous timber in Siberia at 2,800 millions c.m. to be exaggerated. Accessible resources of Coniferous timber in other parts of the world are estimated to cover an area of forty-five million ha. The author considers that since the annual world consumption of Coniferous timber is 727 millions c.m. and the world's total of Coniferous standing timber is 27,875 million c.m., if the rate of exploitation is continued, there will be very little virgin forest left at the end of forty years. Hardwood resources in the British Empire (under reserve), are estimated by the author at about 6,000 millions c.m. He considers the shortage of hardwoods will be less acute owing to the natural reproduction of broad-leaved trees, and because they are less ravaged by fires.

Saving the Malvern Hills from Disfigurement.—We learn that a local committee has been formed to raise the required sum of money to purchase the remaining quarry rights on the Malvern Hills, so that the further disfigurement of the hills may be guarded against.

British Gladiolus Society.—This Society will hold its exhibition next year at Taunton, on August 13 and 14.

Preservation of Rural Surrey.—The institution of the Dorking and Leith Hill District Preservation Society took place on the evening of October 22. There was a crowded meeting, presided over by Sir William Lawrence, Bart., while Lord Crawford and Balcarres, President of the Council for the Preservation of Rural England, to which it is the intention of the Dorking Society to become affiliated, was present. Sir William Lawrence spoke of the work that had already been done in keeping the Dorking area unspoiled. Among other features, Box Hill had been purchased for the nation by Mr. Leopold Solomons; Glory Woods had been presented to Dorking by the Duke of Newcastle; a great number of the magnificent Spanish Chestnut trees in Betchworth Park, threatened by the new arterial road between Reigate and Dorking, had been saved; Bookham Common had been acquired and the trees in it preserved; and, finally, through the efforts chiefly of Mr. and Mrs. Roland Vaughan Williams, Friday Street had been saved for the nation. On Sir William's suggestion, a telegram expressing the gratitude and appreciation of the meeting was sent to Mr. Vaughan Williams.

The Tete d'Or Park, Lyons.—Probably most visitors to the city of Lyons, in France, have seen the beautiful park known as the Tète d'Or, which covers a space of 117 hectares. The citizens of Lyons are justly proud of the park, which, however, will have cost in upkeep in 1929 alone the large sum of nearly two million francs.

Legacies to Gardeners.—Colonel Sir J. A. Anstice, K.C.B., of The Old Grange, Dymock, Gloucester, who died on August 1, 1929, left £50 to his gardener, Mr. Joseph Trotter.—Mr. John Leigh, J.P., of Westleigh, Lea, Preston, left £250 to his gardener, Mr. James Ireland, if still in his service, and not under notice either given or received.

Kingston and Surbiton Gardeners' Society's Lectures.—The series of evening lectures for the coming winter session, organised by the Kingston and Surbiton Chrysanthemum and Gardeners' Improvement Society, and to be held on the first Tuesday of each month, in St. Peter's Church Hall, Norbiton, will commence on November 5, when Mr. W. Chandler will lecture on " Sweet Peas." Succeeding lectures will be on December 3, "Chrysanthemums," by Mr. H. Weaver; January 7, 1930, "Pruning Fruit Trees," by Mr. P. E. Cross; February 4, "Annuals" (to be arranged); March 4, "Bees," by Mr. C. H. Rose; April 1, a Special Talk, by Mr. W. H. Divers, V.M.H.; and May 6, a lantern lecture on "Our Local Birds," by Mr. D. A. Rawlence. The meetings will commence promptly at 8 p.m., and ladies and visitors are invited to attend the lectures.

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[*] *Journal* of the Roy. Hort. Soc., Part 2, Vol. LIV

Heavy Crop of Potato Arran Banner.—On opening a "road" for the digger to raise a crop of Arran Banner Potato on the farm of Mr. William Gardner, Roddinglaw, Gogar, near Edinburgh, extending to ninety-seven-and-a-half yards long by six yards wide, the produce amounted to two tons seven hundredweights, a yield that works out at the rate of nineteen tons eight hundredweights per acre.

Floral Art in Brussels.—A successful and well-attended exhibition of floral art was held in Brussels, at the Palais du Midi, from October 12 to 14. The centre of the hall was occupied by a superb display by the Belgian Florists' Union and the firm of Bogaerts. The entrance of the hall was marked by an imposing collection of Palms and Ferns sent by M. M. Maricq et fils, including a specimen of the very rare Angiopteris fraxinifolia; at the other end of the salon was a group of fine Palms displayed by Messrs. Goossens. The right wing was occupied by a big display of Chrysanthemums from the well-known amateur, M. Odon Warland, and by various groups of Dracaenas, Chrysanthemums and Dahlias, while the left wing comprised Nephrolepis, Begonias and Cyclamens, and a fine display of Dahlias from the firm of Nagels, of Wilrijk. Along the walls were excellent collections of various kinds of fruits, and among others, exhibits from the Vilvorde Horticultural College, while at the bottom of the hall, in front of Messrs. Goossens' group of Palms, were the Orchids, notably a most attractive collection of Cattleyas and Cypripediums from M. Firmin Lambeau, and mixed groups from Messrs. Flandria, of Bruges; Messrs. Sanders, also of Bruges; and Messrs. Stuart Low and Co., of Enfield, Middlesex.

Horticulture in Roumania.—The Roumanian Horticultural Society is holding this year its usual autumn exhibition, from November 7 to 11, in the Carol Park in Bucarest. It will be opened by Queen Marie and the Royal Family, supported by members of the Ministry and the Diplomatic Corps, and there will be a number of exhibits from the Ministry of Agriculture, probably including produce from Army gardens. A large pavilion is to be erected, and also a cinema hall, where films of horticultural interest will be exhibited. The Society is making excellent progress, and at its usual meeting on September 21, was able to show a balance sheet with a handsome credit balance. For the eighth year in succession, Monsieur C. Faraudo has been elected President of the organising committee.

The Hop Crop in England and Wales, 1929.—In a preliminary statement by the Ministry of Agriculture and Fisheries, showing the estimated total production of Hops in the years 1929 and 1928, it is stated the Hop crop of 1929, produced under very favourable conditions, and on a slightly increased acreage, as compared with the previous year, gave a yield per acre well above the average. The quality of the crop was generally reported to be excellent. The total production in England is estimated at 359,100 cwts., or 117,000 cwts. more than in 1928, and 74,000 cwts. above the average for the ten years 1919-28. Over the whole of the Hop-growing areas the average yield per acre is estimated at 15 cwts., compared with an average of 10·2 cwts. in 1928, and 11·9 cwts. for the previous ten years. An improvement in the yield per acre was noticeable in all Hop-growing districts, the greatest increase being in Sussex, where the average yield per acre for the county was 16·8 cwts., compared with 10·1 cwts. in 1928. Hampshire, with 16·7 cwts. per acre, showed relatively less improvement, the yield for this county in 1928 being 12·7 cwts. per acre. These two counties showed a higher yield per acre than any other Hop-growing district except that of Kent, where the yield was 17·2 cwts. per acre. Hereford and Worcester, with 12·9 cwts., and 11·2 cwts. per acre, respectively, were 4·7 cwts. and 4·1 cwts. per acre higher than in the previous year. Surrey, with 12 cwts. per acre, returned only half-a-hundredweight more per acre than in 1928. About sixty-five per cent. of the total crop was grown in Kent, where the total production for the county was 233,000 cwts., compared with 162,000 cwts. in 1928. The yield per acre for the whole county was 15·7 cwts., or 4·8 cwts. per acre more than in 1928, and nearly 3 cwts. above the average for the previous ten years. The improvement in the yield per acre was most marked in the Weald, which gave 5·2 cwts. per acre more than in the previous year, while in the east and mid-Kent districts the yield per acre was about 4·5 cwts. higher than in 1928.

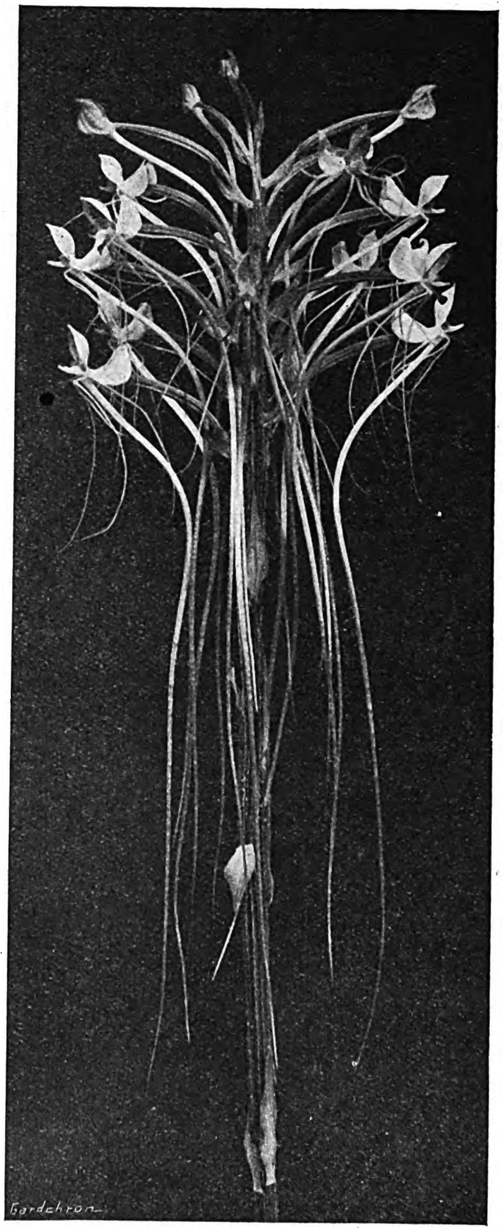

FIG. 156.—HABENARIA LUGARDII.

R.H.S. Award of Merit, October 23. Flowers white and green. Shown by Messrs. Sanders.

(see p. 333.)

A Bean-harvesting Machine.—For the third year in succession, trials have been carried on at Marolles-en-Hurepoix, Seine-et-Oise, in France, of machines for the harvesting of Haricot Beans, which are so largely grown in that country. Up to the present, no satisfactory machine has been devised, but this year the apparatus invented by a Paris constructor, M. Loiseau, gave excellent promise of success after one or two improvements have been made. Briefly the Beans are first cut near the ground by a sharp knife, or plough-share, and the plant is then gripped by two bands of rubber, which throw it to one side, at a distance which can be easily regulated, so that if desired the plants from several rows can be thrown on to the same heap. Or, if preferred, an arrangement similar to a reaper-binder, such as is used in a hayfield, can be brought into play, by which the plants can be tied together into bundles of the desired size. The machine, although solidly constructed, is light in weight and travels easily. The inventor has it in mind to construct a machine which will reap two rows at once, and is confident of being able, eventually, to supply machines which will give complete satisfaction.

Amalgamation of two Belgian Firms.—Those among our readers who have visited the fine horticultural establishments of Flandria, Ltd., at Bruges, in Belgium, and of M. Théodore Pauwels, at Meirelbeke, near Ghent, will be interested to learn that these two eminently successful businesses are amalgamating, and M. Pauwels is becoming an administrator of the Flandria firm, while maintaining his especial interest in the Orchid-growing department of the enlarged establishment. It is understood that the arrangement will be welcomed by the customers of the two firms, and by the world of Belgian horticulture generally. The head office will continue to be at Bruges.

A Gigantic Apple.—We are told that only half the normal supplies of Apples will be forthcoming this season owing to the failure of the Canadian and American crops, but should the Scottish crop approach anything like the specimens grown by Mr. J. H. Gait, Queen's Road, Stonehaven, Kincardineshire, Scotland, should suffer little from the shortage. Mr. Gait has just gathered his crop, and one of his specimens of Apple Mère de Ménage turns the scale at nineteen-and-a-half ounces, and measures fourteen-and-three-sixteenth inches in circumference. The excellent crop is attributed to the remarkably fine weather experienced during the past six weeks.

British Bulbs for British Parks.—The success which has attended the planting of home-grown Tulips in the London Parks during the past two years has led to further orders being placed among home-growers for the display in the spring of 1930. The cost of the bulbs—including home-grown Gladioli corms for a summer display next season—is being borne equally by the Office of Works and the Empire Marketing Board. It is stated that the principal London display of spring flowers in 1930 will be in St. James's Park. To further interest the general public in British bulbs, the Empire Marketing Board is arranging for an exhibition next year in the public parks of Cardiff. A large consignment of Bermuda Lilies (L. Harrisii) has already been received at Hyde Park.

Allotments in England and Wales.—Speaking at the tenth Annual Meeting of the Yorkshire County Allotments Federation, at Huddersfield, Mr. N. Buxton, Minister of Agriculture and Fisheries, stated that the allotment movement was deserving of every encouragement by individuals, by local authorities, and by the State. Whereas before the war only one-quarter of the area of allotments provided by public authorities was in urban districts, now the proportion is over one-half. In actual numbers urban allotment holders outnumbered the rural by over two to one. This interest of town dwellers in allotment cultivation was one aspect of the revolt against those features of nineteenth century industrialism which caused such misery to the workers. It was true, he continued, that some 300,000 allotments had disappeared since the war owing to the withdrawal for building and other purposes of large areas of land pressed into use for food production during the national emergency, but a comparison with the pre-war position showed a great advance. The total amount of land owned and leased by local authorities in 1928 was 57,021 acres, as compared with 33,523 acres in 1914, an increase of 23,498 acres. There was, however, still a large unsatisfied demand and Mr. Buxton appealed to local authorities to call allotment committees together at regular intervals and to see that all matters concerning allotments were referred to and discussed by them; he also reminded them that under the Act of 1925 they were given the power to spend up to a 1d. rate on allotments, and he could imagine no more worthy subject for expenditure if it were necessary in order to provide adequate facilities. Referring to the position of the allotment movement in Yorkshire, Mr. Buxton stated that one-ninth of all the allotments in England and Wales were situated in the three Ridings of Yorkshire, and of these five-sixths were in urban areas. In conclusion, Mr. Buxton expressed his pleasure with the prospect in the near future of the two organisations which at present represented allotment holders in England and Wales, viz., the National Union of Allotment Holders and the Allotments Organisation Society, coming together to form one National Society.

Gift of Italian Garden to Eton.—The Italian Garden which is now being constructed in the grounds of Eton College, near the Provost's Lodge and opposite College Field, is the gift of the King of Siam, who is an Old Etonian.

Chrysanthemum Madame Gabrielle Thiaux (Red Cavell).—We understand that a red sport from Chrysanthemum Edith Cavell appeared some time ago, and was exhibited on November 26, 1925, by M. Thiaux at a meeting of the Société Nationale d'Horticulture de France under the name of Madame Gabrielle Thiaux. We had verbal confirmation of this in Brussels a few days ago, and Mr. Simmonds, the Assistant Secretary of the Royal Horticultural Society—who first drew our attention to this matter of nomenclature—states that the red sport from Edith Cavell received a Certificate of Merit in Paris in 1925. It appears, therefore, that the name of Red Cavell (see p. 352) must be dropped in favour of Madame Gabrielle Thiaux, in accordance with the general principle of priority.

Friday Street Purchased for the Nation.—The efforts to secure the Severells Estate, near Friday Street, for the nation, have met with success, for on October 16, Mr. R. E. L. Vaughan Williams, K.C., who has been chiefly instrumental in raising the required purchase money, sent a definite acceptance of Sir Frederick Richmond's offer to sell the estate to the Friday Street Preservation Fund for the sum of £8,500, although the full amount of the purchase price had not then been subscribed. The sum of £250 had still to be raised, but this comparatively small deficit has since been wiped out, but the Fund is still open as it is hoped that enough money will be subscribed to make it unnecessary to call up the guarantees, amounting to £600, and also to have enough left in hand to carry out any work which may be necessary on the estate before handing it over to the National Trust. The question of the use to which the estate should be put has not yet been decided, but when the matter has been carefully considered by the organisers of the Fund, a statement will be issued; the chief question is whether the public shall have access to the place or not. Great praise is due to Mr. and Mrs. Vaughan Williams, and other organisers of the Fund, for the success which has crowned their efforts.

Roses at the Colchester Oyster Feast.—While enjoying the oysters provided for them at the world-famed Colchester Oyster Feast, the guests were charmed by the floral decorations of Carnations and Gladioli contributed respectively by members of the National Carnation and Picotee Society and the British Gladiolus Society. In addition, there was a fine display of Colchester Roses contributed by local growers who arranged, in the Mayor's Parlour, the numerous trophies and cups they have won this season. The flowers were arranged by (among others) Mrs. A. Prior and Mrs. Cecil Cant, and the guests included Mr. Andrew Ireland, Captain C. Harvey Cant, Mr. W. D. Prior, and Mr. A. E. Amos.

Appointments for the Ensuing Week.—Monday, November 4: Birmingham and Midland Counties Gardeners' Association's lecture. Tuesday, November 5: Royal Horticultural Society's Committees meet; Royal Caledonian Society's meeting; West of England Chrysanthemum Society's Exhibition (three days); Marlow and District Chrysanthemum Society's Exhibition. Wednesday, November 6: Lincolnshire Gardeners' Association's Exhibition (two days); Taunton and District Chrysanthemum and Fruit Society's Exhibition (two days); Royal Oxfordshire Horticultural Society's Exhibition (two days); Faversham Chrysanthemum Society's Exhibition (two days); Bideford and District Horticultural Society's Exhibition; National Carnation and Picotee Society's meeting; Wimbledon Gardeners' Society's meeting; Rotherham and District Horticultural and Chrysanthemum Society's meeting; Kingston and Surbiton Chrysanthemum Society's Exhibition; Gainsborough Allotment Holders' Association's meeting. Thursday, November 7: National Chrysanthemum Society's Show (two days); Derbyshire Horticultural Association's Chrysanthemum Show (three days); Jersey Gardeners' Society's Chrysanthemum Show; Bridport Chrysanthemum Society's Exhibition; Newport Horticultural Society's Chrysanthemum Show. Friday, November 8: Cosham and District Horticultural Society's meeting; Chorley Chrysanthemum Society's Show (two days); Royal Horticultural and Arboricultural Society of Ireland's meeting; Leicester Chrysanthemum and Fruit Society's Exhibition (two days); Bletchley and District Horticultural Society's Autumn Show (two days). Saturday, November 9: Gloucestershire Root, Fruit and Grain Society's Exhibition; Leigh-on-Sea Horticultural Society's Chrysanthemum Show; Leeds Paxton Society's lecture.

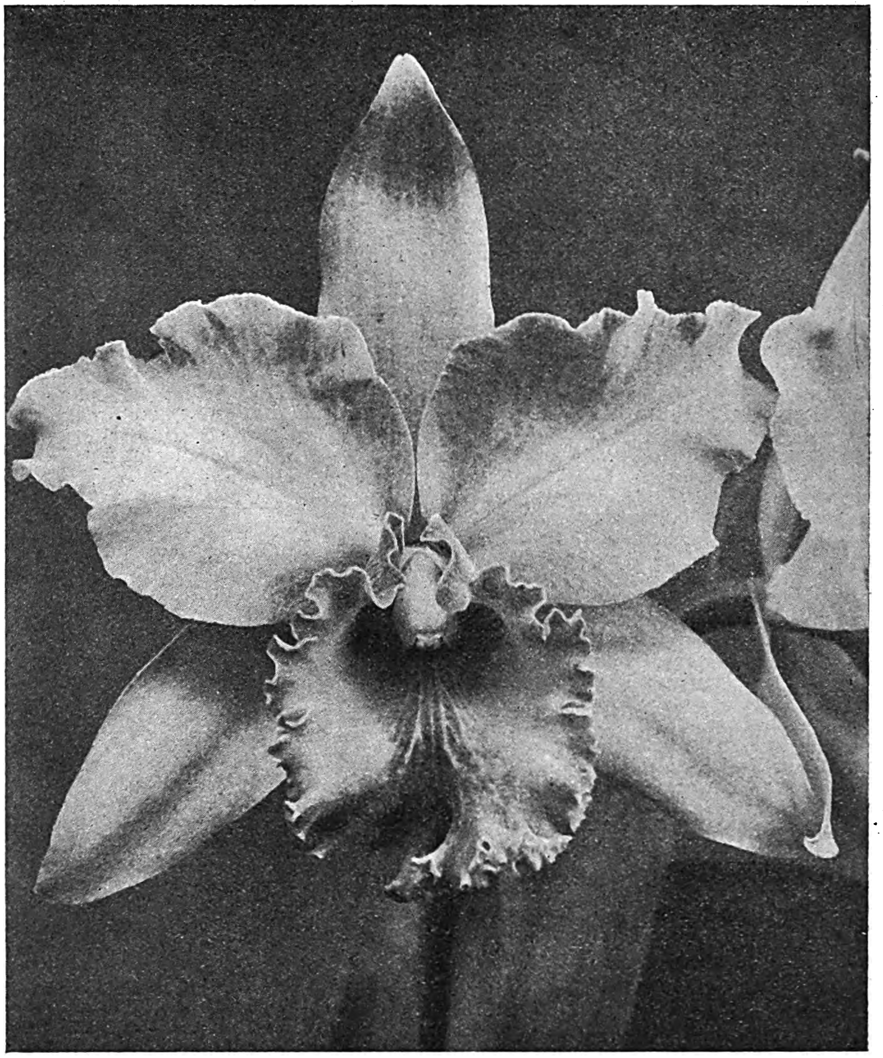

FIG. 157.—BRASSO-LAELIO-CATTLEYA AMBAUREA.

R.H.S. First Class Certificate, October 23. Rich yellow and cerise. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

(see p. 333.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Rheumatism.*—Gardeners, being very subject to heats and colds, often suffer much from rheumatism. Having been much affected with it myself, I wish to give them the benefit of my experience. Take one raw egg well beaten, half-a-pint of vinegar, one ounce of spirits of turpentine, a quarter-of-an-ounce of spirits of wine, and half-an-ounce of camphor, put them in a wine-bottle, and shake them well for ten minutes. In half-an-hour the mixture will be fit for use, when it should be well rubbed on the parts affected three or four times a day. In several instances this has effected a cure in a few days; but essence of mustard is best for bad cases. This is good for all outward applications in man or beast, green wounds, sprains, bruises, broken-kneed horses, saddle galls and bit galls. No farmer should be without it. *John Hayes, Farnham. Gard. Chron., November 4, 1854.*

Publications Received.—*A Countryman's Day Book: An Anthology of Countryside Lore.* Compiled and arranged by C. N. French; pp. xxvi 254. Messrs. J. M. Dent and Sons, Ltd., Aldine House, Bedford Street, W.C.2. Price 6s. net.—*Termites in Buildings.* Leaflet No. 31 of the United States Department of Agriculture, Washington, D.C. (no price).

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Seedling Dendrobiums.—Many of the larger plants will have formed pseudo-bulbs, and should be kept in a warm house in surroundings just moist enough to keep the roots active. Growth will not be very pronounced before the turn of the year, when, with the increasing light and sunshine, roots and new growth will be produced, and the necessary repotting may be done successfully.

Seedling Odontoglossums and Allied Subjects.—These require attention at various times. Larger plants, that are filling their pots with roots, should be repotted before they become pot-bound; healthy plants should be given slightly larger pots, without greatly disturbing the ball except to remove the crocks and any sour material. Use well-drained pots and a compost consisting of equal parts of A.1. and Osmunda fibres, and Sphagnum-moss, with a few broken, dried Oak or Beech leaves added; the whole should be chopped fairly fine and pressed firmly about the roots. A little extra Sphagnum-moss may be used with advantage on the surface. Smaller plants in the seed-beds, that are just developing their second leaf, may be pricked out into store-pots that have been filled and watered some hours previously. Keep the store pots in a moist position, well up to the glass, where the plants may be shaded from bright sunshine. These will grow well in an even temperature of about 60°. Spray the plants lightly on favourable occasions. Watering should be done very carefully when the compost is approaching dryness, to avoid disturbing the seedlings, and insect pests should be kept in check.

Temperatures.—At this season houses should be kept a little on the warm side at night, with sufficient bottom ventilation during suitable weather to prevent any stuffiness, although care is needed to prevent the pipes getting too hot, and thereby causing a very dry atmosphere in which insect pests, such as thrips, scale and red spider thrive. The temperature of the warm or East Indian house should range from 65° to 68°; the warm intermediate house, 60° to 65°; cool intermediate, 58° to 62°; and cool house, 52° to 58°. The lowest temperatures should be reached in the early morning. So soon as the canvas blinds can be dispensed with they should be dried and stored for the winter. The lath roller type of blinds may be used with advantage on cold nights as extra protection.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Strawberries.—Owing to the prolonged drought it has been an easy matter to keep the plantations free from weeds this season. Since rain has fallen, however, hosts of small surface weeds have germinated, and these should be got rid of before the soil becomes too wet. The soil between the rows should be lightly turned over with the fork, burying all the seedling weeds in the process. Endeavour to get the soil well up under the foliage of the plants so as to encourage and protect the surface roots. Established plantations of Strawberries have had a very rough time this year. The severe weather experienced last spring was in some degree responsible for many failures, and the plants were lifted by the frost and left high and dry for many weeks during a very critical period. Then followed one of the longest droughts on record, the effect of which is reflected in the very poor condition of the plants at the present time. New plantations, too, are none too happy this autumn owing chiefly to the extraordinarily dry conditions which prevailed since the runners were planted. I have urged, on one or two occasions, the desirability of planting Strawberry runners during the early days of August so that the plants may become well rooted and established before the winter. That precept I have endeavoured to carry out here, and, although we watered the plants individually for weeks after planting, they have failed to make that growth, or build up that crown which is desirable before the winter sets in. In the north of England and in Scotland some form of winter protection was, at one time, afforded the plants, such as a light dressing or mulching of half-rotted stable manure on the stiff retentive soils, and strawy farmyard manure for the lighter soils, which was afterwards forked into the soil during March or in April. Whether this is the practice now, or not, I am unable to state, but I see no reason why it should be discontinued, and it certainly would be advantageous, even in the south, should we experience severe frost such as we did early last spring. It appears to be a recognised practice on some of the Canadian Strawberry farms. The growers there admit that while the plants often come through the winter without protection, it is best not to take any risks. The system adopted is that, after frost has set in and the soil is quite hard, the plants are covered with a light coat of clean straw; two to three inches in depth is recommended, and straw that will not pack too closely over the plants is best. This mulch prevents the alternate thawing and freezing of the ground in the spring, and protects the plants if there is not much snow in winter. In early spring, when danger of severe frost is past and before the plants begin to grow, they are uncovered and the straw put between the rows to keep the fruits clean. The climatic conditions which prevail in this country and those of Canada are by no means similar, but there is room for experiment and trial for those who are inclined and can find the time.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Azaleas.—Azaleas are among the most useful plants for general decorative purposes in the conservatory during the winter and spring months. Large numbers of splendid, well-budded plants are imported annually, both of the indica and mollis varieties, and a very few plants will give a great quantity of bloom in return for the small outlay and labour entailed. Azaleas have very fine root-systems, and imported plants can be accommodated in rather small pots. A suitable growing medium is peat with silver sand added, and it should be in such condition that it may be made firm by ramming. After potting, the plants should be stood in frames from which frost can be excluded and sprayed occasionally; they should never be allowed to dry out at the roots but, on the other hand, they should not be saturated with water, or the leaves will soon drop, and the buds may not develop. After a few weeks of this treatment they may be moved into warmer quarters in sufficient quantities to meet the demand, and forced gradually into flower.

Spiraeas.—The many herbaceous Spiraeas (or Astilbes) are suitable for producing flowers in the early spring, and as they are now available in large quantities and great variety, some should be secured and potted forthwith. Among varieties suitable are S. palmata, S. Peach Blossom and S. Alexandra. These will be found extremely useful, and when a batch is well-grown many spikes of flowers in varying hues give a delightful effect. Spiraeas delight in a somewhat heavy compost which should be made fairly firm, and when potting these plants it is well to place them so low as possible in the pots, so as to leave plenty of room for water, for when in growth they require an abundance of water at the roots and should on no account be allowed to become dry. When the flower spikes are developing it may be necessary to water them twice daily on bright days. A good plan is to stand the receptacles in saucers of water so that the roots always have a reserve of moisture to draw from.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Late Vineries.—The fruits of Alicante and similar varieties of Grapes should now be quite ripe and ready for use. Gros Colmar and Lady Downe's, the latter almost beaten out of the field by coarser and larger-fruited varieties, require a longer season, and those who still appreciate high quality give them Muscat treatment. The weather has been most favourable to the finishing of the fruits of these varieties, but the use of a little fire-heat must not be relaxed until the foliage, the true test of maturity, shows signs of changing. The borders should be examined, for although feeding is finished, it should not be overlooked that the berries must be kept fresh and plump until Christmas. Tepid water, at a temperature of 80°, may be given, and to prevent damp rising, the whole border should be well mulched with some dry material. Late Muscats now ripe and well-coloured may be subjected gradually to a lower temperature, with a proportionate reduction of atmospheric moisture. As Muscat Grapes are so subject to damping, the house should be kept quite dry when the outside atmosphere is moist and heavy. Other late varieties of white Grapes such as Mrs. Pearson, require plenty of time to mature, and when well finished should keep in good condition for some considerable period

Cucumbers.—Plants now in bearing may be afforded applications of weak warm liquid manure alternately with clear water, especially if the roots are confined to pots or narrow pits. They should also be top-dressed with light, rich turf, to which plenty of rough lime-rubble and a sprinkling of bone-meal have been added. Do not allow the foliage to touch the glass, and if space is plentiful, growth should not be checked too much by stopping. Very strong laterals, of course, may be pinched back to maintain a proper balance, while some of the laterals which have borne fruits may be cut away by degrees to make room for an even spread of foliage. As Cucumber fruits are not much in demand throughout November and December, the plants should not be overcropped, especially if they are expected to crop during January and February. Reduce the male blossoms, as these weaken the plants, and cut the fruits when three-parts grown. Direct syringing having been discontinued, atmospheric moisture and, at the same time, a brisk bottom heat of not less than 60°, should be maintained. Any late plants should be encouraged if intended for use early next year, by careful watering and feeding, especially if the root-run is limited.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens. Wisley, Surrey.

Replanting.—Those who contemplate alterations or improvements in the flower garden will find late October and early November the best time to carry out such operations. The ground then is comparatively warm and favourable for the production of new roots; therefore every endeavour should be made to carry out the planting so early in November as possible. The preparation of the ground is an important factor, and in all cases should be thorough, as the future success largely depends on how this has been done. Beds or borders that are to be planted with shrubs or ornamental trees should be trenched at least two feet deep and the subsoil broken up with a fork. Decomposed vegetable matter or old turf should be added, according to the nature of the soil. Plant immediately the plants are received, if weather conditions permit, rather than heel them in; make all the larger specimens secure with stakes where necessary.

Roses.—Where new beds of Roses are to be planted, one of the most important details is to plant them so early as possible; if planted during early November they should have formed many new roots before the end of the year, if the weather is at all open. The beds or borders for their reception should be prepared now, deep trenching, breaking up the subsoil, and incorporating a liberal supply of farmyard manure and bone-meal as the work proceeds, being essentials towards securing satisfactory and lasting results. When adding to the collections of Roses, liberal plantings of the dwarf Polyantha types may be made with advantage. In this section there are many varieties that are ideal subjects for massing, and are a real acquisition to the flower garden during summer.

Gladioli.—The corms of these should now be lifted, and stored in a dry, frost-proof shed. Keep the various sorts separate by tying them in bundles or placing them in boxes. They can be picked over during wet weather after they have been dried off.

Tigridias.—It is usual to lift the bulbs of these every autumn, except in the milder districts, but we found these wintered well last year, even although the thermometer registered below zero on three successive nights. The only protection they had was about four inches of dried Bracken, pegged down over them. The growth this season has been stronger than if the bulbs had been lifted and planted again in spring.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Rotation of Vegetable Crops.—This matter should now be considered, so that the ground for the various crops may receive appropriate treatment. Most vegetables enjoy a change of quarters, although it is well-known that Onions and Potatos, provided they receive good cultural treatment, may be grown on the same ground for several years in succession. Carrots, Beet and Parsnips should be grown in ground which was well prepared for the previous year's crops, as they like a mellow soil and strongly object to the presence of fresh manure; ground on which Celery has been grown should suit these crops admirably.

Vegetables.—Cauliflowers, Lettuces, Parsley, Carrots, etc., in frames, should be kept free from weeds and the surface soil stirred frequently. Water should be afforded in moderation. French Beans in cold frames require very careful airing and watering, as they are very liable to damp off. On cold nights, cover the frames with plenty of protective material.

Seakale.—So soon as the foliage has died down, sufficient crowns of Seakale may be lifted for forcing. Break the smaller thongs from the main root so that four or five may be placed in a nine-inch pot, or they may be planted out in a bed in the forcing house where a temperature of 50° to 60° may be maintained.

Celeriac.—This crop should now be lifted and stored in sand or ashes in a sheltered position.

Cauliflowers.—Where the heads of Cauliflowers are ready for cutting and are turning in too fast, the plants may be pulled and placed in a cool cellar or in deep, well-ventilated frames, and shaded with mats, under which conditions they should keep fresh for several weeks. Autumn Broccoli may be treated in the same way, as frost will soon spoil the heads when fully developed and if left unprotected.

Seed Potatos.—Tubers selected for seed sets, when well greened, should be placed in store boxes, provided they are perfectly dry. Discard any that have signs of disease, and see that each variety is labelled correctly.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Forcing Seakale and Rhubarb.—As the leaves fade on Seakale and Rhubarb, a few roots should be lifted and exposed to frost preparatory to planting them in heat for forcing. Rhubarb from which few sticks have been pulled during the past season should be selected for forcing, as only such can be expected to give a good return for the trouble involved. Any dark warm corner in a shed or cellar should prove suitable, provided sufficient moisture is afforded, but if such is not available, a low, wooden erection surrounded with fermenting material such as horse manure, leaves, or a mixture of these, makes a capital forcing chamber. If procurable, The Sutton is the best variety of Rhubarb, being of excellent colour and possessing a flavour all its own.

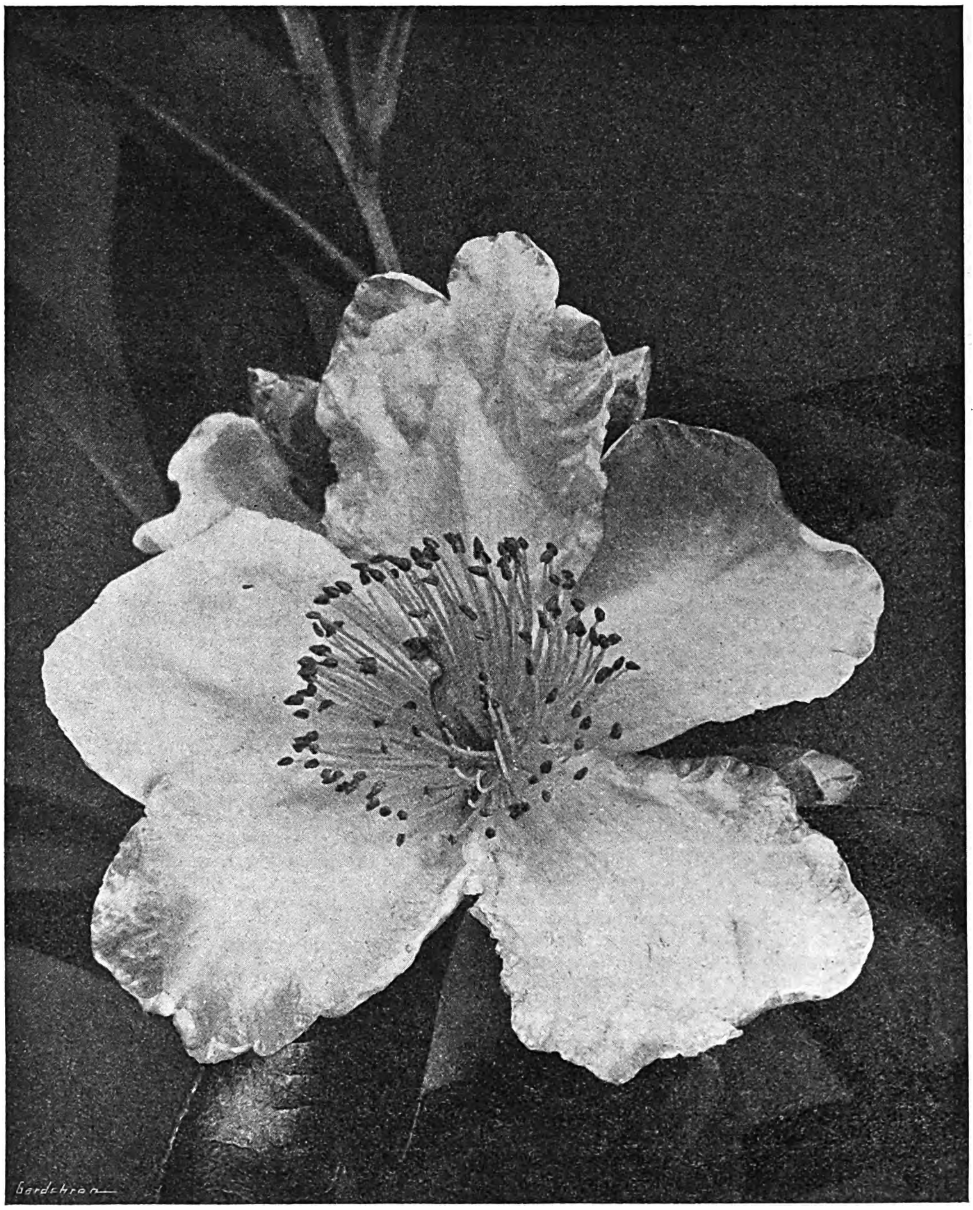

FIG. 158.—GORDONIA AXILLARIS.
R.H.S. Award of Merit, October 23. Flowers white, with golden stamens.
Shown by Major L. Johnston, Campden (see p. 334).

Planting Fruit Trees.—This work should be pushed on if the weather is dry, and the ground in workable condition. The ground for a new plantation of fruit trees should be deeply cultivated, but unless the under soil is of the finest quality, it should not be brought to the surface. If on grass, the turf should be buried just so deeply as to cause decay, but yet to be within easy reach of the roots in the immediate future. Unless poverty-striken, no manure should be incorporated with the soil, but a good mulch of fresh manure placed above the roots is of great benefit. When the soil has settled, planting may be done at any time. If of a light nature, holes should be opened at the necessary distance, deep enough to allow of the trees being planted to the ground mark on the stems, but if the soil is heavy, shallow planting should be practised; in extreme cases, setting the tree on the level and raising a mound round it, is advisable. Even for bush or pyramid trees a suitable stake should be provided and fixed before planting. The roots, after all bruised or broken parts have been trimmed off, should be spread out all round, and some of the best soil available worked in among them with the fingers; if fresh loam can be used for this purpose, so much the better. When this has been done, the filling in may be completed with the staple soil, and the whole trodden quite firm. Some system of naming the trees should be adopted, so that each variety may be identified easily. On the question of pruning newly-planted fruit trees, a good deal of controversy has taken place, but I strongly advocate cutting back the leaders and spurring back all side growths a few weeks after planting, as it helps to restore the balance between root and top. When planting fan-trained trees on walls it will generally be found that every tree, upon arrival, has a central growth pointing to the top of the wall. This, I consider, should be cut out at once, as it naturally gets the most direct flow of sap, and grows too strongly, at the expense of the side branches; I find that if the sap is directed to each side near the root a much better balanced tree results. In all cases the trees should be tied rather loosely at first, to allow them to settle with the soil. Permanent ties should be provided later, and some means taken to prevent frictional injury to the bark.

SALVIAS.

THE interesting note on certain economic Salvias in your issue of October 19 (p. 306) prompts me to send an account of some varieties with conspicuous flowers. This has been a successful year for Salvias and allied genera; the warm weather which followed the recent rain has made plants which were suffering somewhat from the drought produce a magnificent show of blossom. S. splendens may now be obtained in a variety of colours, including a yellowish-white, a streaked white and red, and shades of violet; it also may be had with yellow foliage, or with foliage spotted like the leaves of an Aucuba, but I think the only form worth growing is the bright scarlet one with which we are all so familiar, and of this, good varieties are Zurich, Vesuvius and, perhaps, best of all, Harbinger. Like most of the Salvias, it is very obliging, and may either be raised from seeds or from cuttings, or by lifting stools and potting them up in due course. It is very good both outside and as a pot plant, and for the latter purpose may be grown into a standard.

Another universal favourite is S. patens. This may be had in the dark blue form, in a white form, and in a very beautiful Cambridge-blue form, for which Mr. T. Hay recently received an R.H.S. Award of Merit.

One of the best Salvias for bedding-out is S. Pitterii, with bright scarlet, very hairy flowers; it is most floriferous, and at the time of writing I have a hedge of it in the garden fifty feet long, and composed of shrubs three feet high and four feet through. Another scarlet Salvia is S. Grahamii, which is somewhat similar but, in my experience, much less compact. The third scarlet Salvia, S. rutilans, has much smaller flowers but should be grown for the delightfully scented leaves which recall the fragrance of a Pineapple. This plant, like the other two scarlet Salvias, often comes through a winter safely.

A Salvia with large flowers of bright pink, freely produced, is S. Greggii. This, in the Isle of Wight and elsewhere, grows into a big bush, but it is, perhaps, most effective when plants raised from cuttings taken the previous autumn are bedded-out; it is in bloom all the year. There is also an unattractive yellowish-white form and another variety with deeper pink flowers.

A rank grower which, however, is very handsome in the herbaceous border is S. involucrata. This makes magnificent spikes some eighteen inches long on which, however, the bright pink flowers are set at rather too long intervals to be effective; the variety S. involucrata var. Bethellii has overcome this defect and the flowers are closely clustered together at the end of a much shorter spike, the bracts also being conspicuous. My favourite Salvia is the exquisite S. uliginosa, with tall spikes which sway in the wind; it is apt to die out in some localities and requires a rather stiff soil. It is easily propagated from cuttings taken in the autumn. Another very beautiful Salvia, with a rich blue lip, is S. Pitcheri (S. azurea var. grandiflora ?). This, however, although perfectly hardy, does not produce its flowers until October, and consequently is generally ruined by frost. This year it is excellent; it makes a very good pot plant. S. farinosa is a lovely plant which begins in August to produce spikes which exactly resemble those of a very noble Lavender. It is generally raised from seeds, but as the seedlings vary a good deal, is it best to select a good form and then keep up the stock from cuttings.

S. leucantha is a very pretty plant with white tomentose foliage, and spikes of violet flowers almost entirely covered with dense white hairs. It rarely comes safely through a winter outside, and should be considered a greenhouse plant. A Salvia re-introduced to cultivation is S. mexicana, a handsome and very strong-growing plant with deep purple stems and veins and hairy, indigo-blue flowers which are, however, produced somewhat sparsely.

When growing Salvias from seeds it is of the greatest importance to obtain a good strain and I strongly recommend growers to consult the results of the very successful trials of Salvias raised from seeds at Wisley.

Another very pretty, but rather tender, plant, is S. erubescens, with claret-coloured inflorescences. Salvia aurea has not yet flowered; it is an attractive plant with small, hard, sage-green leaves set closely on the stem, and is worth growing for its foliage alone, only it is not hardy.

Up to the present, we have not succeeded in flowering the Californian Sages known as Audibertias. They have, however, made very fine plants this hot year, and we have lifted them to see if they can be induced to flower under glass. *William Lawrence, Burford.*

ALPINE GARDEN.

SCABIOSA COLUMBARIA.

THE native plants of dwarf stature which are planted in our rock gardens are comparatively few, and yet there is a goodly number which might well be accorded such favour. Among these is Scabiosa Columbaria.

This species is not an uncommon wild plant in England, and is comparatively plentiful on the east coast, while its distribution extends throughout Europe. Although it cannot claim to rival the more popular and freely planted species of Scabious when grown on the rock garden, it repays such consideration generously and becomes quite a charming feature in a warm, sunny spot.

S. Columbaria forms a tuft of greyish, pinnate leaves, one foot or more across, often developing a woody stock with age, and produces its flowers in no niggardly fashion during the summer months and often well into the autumn. The flowers, typical of the genus in form, are comparatively small, being barely an inch across, but they are a delightful shade and are produced on either simple or branching, slender stems up to nine inches or so high. Although merely a native, S. Columbaria can hold its own with many plants from foreign climes which are grown extensively in rock gardens of the present day, and a word or two in its favour may not be amiss.

POLYGONUM CAPITATUM.

OPINIONS are very much divided as to the value of Polygonum capitatum for the rock garden. In the first place, it may only be safely regarded as half-hardy, a factor decidedly against it so far as the rock garden is concerned, while, although by no means unattractive, it has no special beauty to commend it, all of which tends to suggest its banishment as a plant unworthy of further consideration.

But, on the other hand, this Knot-weed from the Himalayas is an excellent carpeting plant, so far as habit of growth is concerned, and as there are always places in the rock garden, such as the beds containing early-flowering bulbs, which are better for a covering, if only temporarily, P. capitatum may well be employed for such a purpose. As it does not mind partial shade, and as this condition does not induce it to grow with such abandon as to be detrimental to neighbouring and, perhaps, choicer plants, it is obvious that this Polygonum is not to be despised. P. capitatum is sometimes listed under the possibly grander, but, nevertheless, incorrect name of P. sino-capitatum.

Briefly stated, its qualifications are that it forms a close, creeping mat of slender, reddish stems set with small, bronzy-green leaves, each of which is marked with a crimson A-shaped bar. In late summer, by which time it has developed into a broad, mottled mat, numerous small, rounded heads of pale pink flowers are produced. Although rather inclined to be dingy, these flowers are by no means worthless, being borne very profusely on short stems just clear of the foliage.

If considered worthy, steps may be taken with the approach of frosts to ensure its survival by potting up a few rooted portions and wintering them under cover; if regarded as unworthy, it may be left to take its chance. *Kent.*

SCABIOSA VESTINA.

THE alpine species of Scabious usually met with in rock gardens are Scabiosa Pterocephala (often grown under the name of Pterocephalus Parnassii), an invaluable rock-covering plant for a warm, sunny position, and the elegant and very beautiful S. graminifolia, whose praises have often been sung, for it is a plant of rare charm and refinement.

But there are other species of this popular genus worthy of the attention of the alpine plant lover, S. vestina being one of these. Although not quite equalling either of the above-mentioned in decorativeness, it yet does not fall far short of being a first-class rock garden plant, especially when it is borne in mind that it is summer-flowering and produces its charming blooms, never plentifully, but in succession from July onwards for many weeks.

S. vestina forms—if planted in a sunny position and light, but by no means poor, loamy soil—a mass of fine, feathery, grey foliage, from among which are produced the speading stems, barren of foliage, and about nine inches long, which bear the large, lavender-coloured flowers. These are nearly one-and-a-half inch across and have disc florets of a lighter shade.

This Scabious is not often met with in gardens, but is a plant well worth securing, for it is a good perennial and by no means difficult to establish and propagate. *M. W.*

SAXIFRAGA FORTUNEI.

THERE are comparatively few plants which consent to give us a display of blossom during these dull autumn months, so do we the more appreciate those which are in flower now—normally or abnormally.

Saxifraga Fortunei is just now at its best. I have it planted in a cool corner of rich soil facing north, and here, where its foot-high flower stems are protected by a sheltering wall behind, it seems perfectly happy. It belongs to the Diptera group and has short, sturdy rhizomes, from which the leaves and flower stems are produced; the leaves are glossy green, large and handsome, each scalloped into seven or more lobes. Uprising from among these are the reddish flower stems bearing quantities of the quaint flowers, the petals of which are clear white, the top ones serving as a dainty background for the vivid orange stamens which lie back against them. The quaintness of the flowers lies in the unevenness of the petals, the bottom one of the five being quite three times as long as any of the other four, and hanging straight down, giving the appearance of a pendent, lower lip.

It is a Chinese plant, and cannot be relied upon to appear in the same spot with unfailing regularity. It is given to dying-off during our winters, but is more or less permanent in well drained, rather rich soil and a cool, well protected corner, such as I have described. *Will Ingwersen, The Birch, Sharpthorne, Sussex.*

WOODLAND GARDEN.

LACTUCA BOURGAEI AND L. PLUMIERI.

THESE two species are, on account of their floral and foliage attractions, and also because they are not so rampant in spreading as to become troublesome, probably the most attractive and useful of the decorative Lactucas, a genus that has given us the Lettuce, but which also embraces a large number of worthless subjects.

As to whether Lactuca or Mulgedium is the correct name of the group to which the above two species belong, the authorities would appear to disagree so heartily that one can only justify the use of Lactuca as the generic name on the authority of *Index Kewensis*, although in the majority of works of reference Mulgedium appears to find favour.

L. Bourgaei and L. Plumieri, both hardy herbaceous perennials, are vigorous growers, producing ample and handsome foliage and giant inflorescences of starry, Aster-like flowers. They are, perhaps, better suited for the wild garden, or an open position in the woodland, than for the herbaceous border, unless the border is of considerable size. Both species are natives of southern Europe and both, under congenial conditions, attain a height of at least four feet, sometimes considerably more.

Of the two, L. Bourgaei is the more desirable as, although easy to establish, it does not take such complete possession of its quarters as L. Plumieri, which has a leaning towards coarseness and should, therefore, be planted in the wildest parts.

The large leaves of both species are very effective—nothing will grow beneath them—while during July and August they both produce, on stout and strong stems, their giant, feathery and spreading panicles of flowers which, although comparatively small individually, are produced so generously as to be very effective. Those of L. Bourgaei are of a charming shade of soft lavender-lilac, while those of L. Plumieri are, perhaps, best described as light steely-blue.

Other members of this group of plants are sometimes met in gardens, notably L. alpina, which, however, on account of its extreme fondness of cultivation, is best avoided—it has a reputation of being very difficult to part with after once having been introduced. Mr. E. A. Bowles, for instance, writes of this species (*My Garden in Summer*): "If ever you want to provide an unending struggle for a brother gardener, and perhaps make a lifelong enemy of him, give him a morsel of the Blue Sowthistle, Lactuca alpina." Incidentally, of L. Bourgaei, Mr. Bowles wrote that his oldest plant of it had "sat in the same place for fifteen years."

Farrer, in his *English Rock Garden*, wrote of them under Mulgedium, his fairly extensive list of species including both worthy and unworthy. A suggestion of Farrer's, worthy of note, is that they may be used as cover plants for Snowdrops and as "nurses" to the smaller Narcissi. *W.*

HARDY FLOWER BORDER.

MECONOPSIS VIOLACEA (K.W. 7,207).

WHEN pulling up a number of ripened, flowering stems from a colony of the recently introduced Meconopsis violacea, it occurred to the writer how little, if any, publicity had been given this deserving plant. It may be that exhibitors of new and rare plants are still loath to show a new species of this genus, feeling that, whatever it is, it must fall far short of Meconopsis Baileyi. However, the relative value, as garden plants, of these two Meconopses may best be considered by referring to M. violacea in the masculine, and M. Baileyi in the feminine gender; in the former we have a bold, sturdy plant, in the latter, grace, refinement, exquisite colouring, and all the beauties attributed to things feminine. Although the amount of collected seeds allocated to my employers was not in any way alarmingly large, the seeds germinated freely and the seedlings grew apace, from start to finish, with unabated vigour. The plants were set out in shade, in an open border and came through the winter without any protection. The great rosettes of silvery-grey leaves, when covered with hoar frost, were quite an attractive sight on a wintry day. Without any extravagant cultivation, many of the flowering spikes were but a few inches short of six feet tall, with thirty to forty large, violet-blue flowers studded with immense orange anthers. We in the Emerald Isle think highly of this noble Meconopsis, and predict for it a great future, and regard it as another plant to perpetuate the name of the intrepid explorer, Captain F. Kingdon Ward. *T. W. Bolas, Mount Stewart Gardens, Co. Down.*

TREES AND SHRUBS.

CORNUS KOUSA.

THIS interesting and attractive member of a family of plants noted for their decorative value in the garden, is in many respects one of the most intriguing of the larger-growing species. Fruiting branches were exhibited at the recent autumn show of the R.H.S., and they attracted a considerable amount of attention.

Forming a tree of deciduous habit and rarely growing above twenty feet high, this species is probably grown primarily for the flowers and secondarily for the fruits which follow. The leaves, borne on short stalks, are opposite, ovate and acute, with an entire but wavy margin, and from one-and-a-quarter inch to three inches long, and about half as wide. The leaf-surface is dark green and smooth, except for bunches of minute hairs at the junction of the veins.

The flowers, borne in May and June (and sometimes continuing into July), on spurs along the branches, are of no beauty in themselves, forming tight little masses, not more than half-an-inch across. Each little button is, however, surrounded by four lanceolate bracts, averaging an inch in length and half-an-inch in width. These bracts are cream in colour and are the distinctive feature of the plant when in bloom. Other garden species of Cornus, such as C. Nuttallii, C. florida and C. capitata, have these bracts, and all are valued on this account. C. Kousa is, indeed, a magnificent sight when in full bloom, with scores of creamy bracts staring straight up at the sun in their flat, four-pointed stars, and this year the species has flowered exceptionally well in the neighbourhood of London.

The flowers, which last for some considerable time before turning brown, withering, and falling from the tree, are followed by the handsome, Strawberry-like fruits, rich crimson in colour and about the size of a Barcelona Nut. This shrub will grow in any good loam, and it appreciates moist conditions, although it is not a subject for dense shade. It likes sun, but, as with most trees and shrubs, it does not relish drought. Although C. Kousa has been described as of bushy habit, it may, on occasion, be quite slender and almost columnar in growth, and sparsely branched. If such is the case, it is apt to be wind-blown in exposed situations. Although strong winds may blow the top over, it is fairly safe to assume that the more exposed the position, the more dwarf and bushy the growth. As a specimen small tree for wide lawns, C. Kousa is ideal.

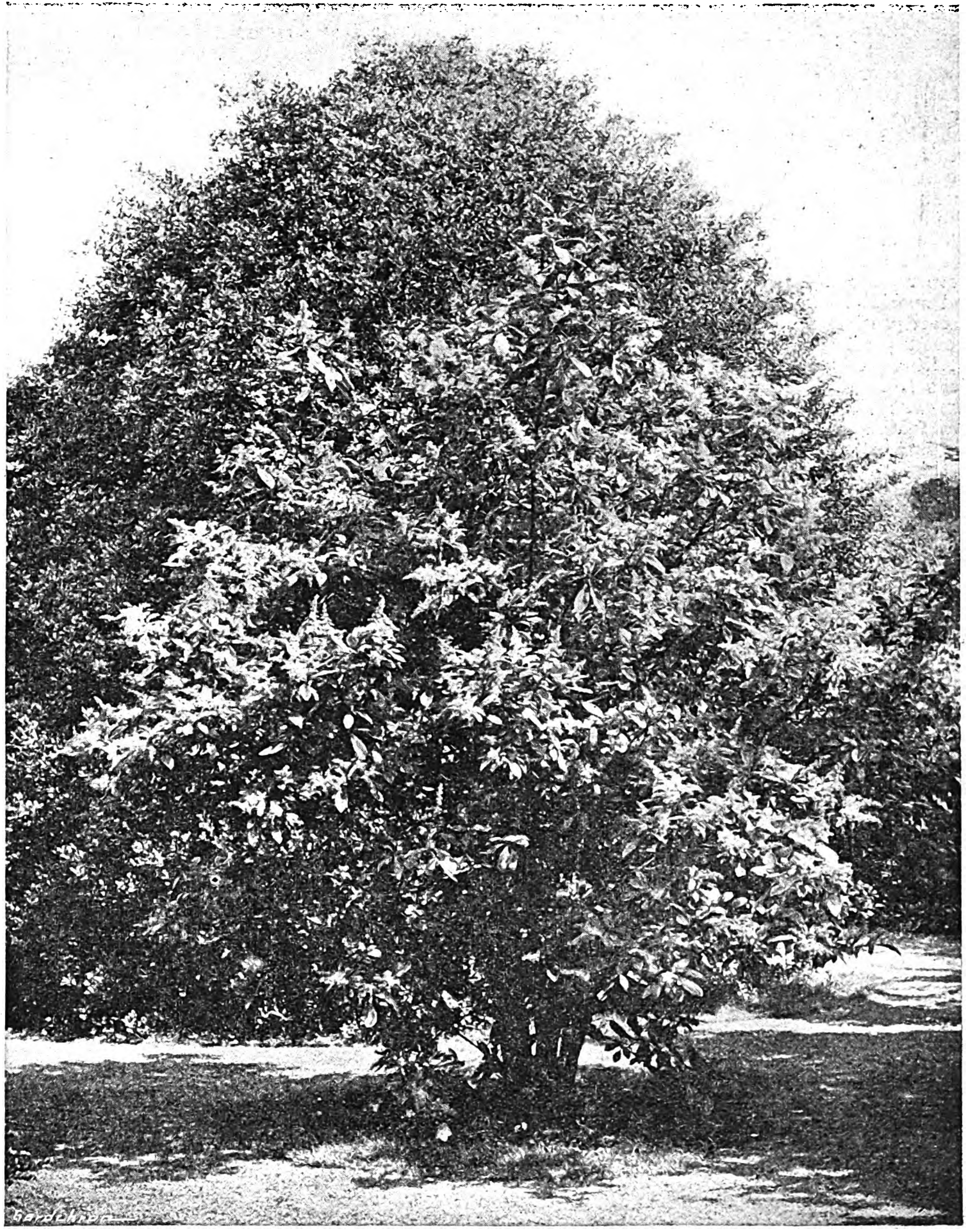

FIG. 159.—MELIOSMA CUNEIFOLIA.

(see p. 348).

Unlike C. florida and C. Nuttallii, which are natives of North America, C. Kousa comes from China, Japan and Korea, and considering its origin, the species is reasonably hardy in most localities in England. It is a close relative of C. capitata, which hails from the Himalayas and China, but the latter is not so hardy and has yellow bracts which are broader than those of C. Kousa. C. Kousa may be found under Siebold's name of Benthamia japonica and there is a variety, chinensis, which is considered to be superior to the type. *L. B. Creasey.*

THE N.R.S.'S SELECT LIST OF ROSES.

The new edition just to hand of the National Rose Society's *Select List of Roses and Instructions for Pruning* is on similar lines to the last one published five years ago. It is dated for the coming year (1930), and the Publication Committee shows consideration in issuing it this autumn, so that it may be of use to those who are selecting varieties to plant this winter.

The preface wisely states that the list of Roses is a "selection," and not a "catalogue"; and further adds that Rose growers of experience and special local knowledge should not lightly discard varieties not included but which have proved particularly satisfactory with them.

Although there are a goodly number of eliminations from the 1925 issue, the list has grown somewhat in length. The number of new varieties now forthcoming, thanks to an increase in the number of raisers and to the desire to exploit to the utmost the possibilities of the Pernetiana element, has no doubt forced some lengthening of the list. The number of varieties, leaving out the Rose species, now briefly described, total nearly four hundred.

In the alphabetical method of listing used there is one slight change noticeable. The "Madames" are entered according to the arrangement of the letters in the abbreviation "Mme." and not as formerly in that of the full word. Such placing is consonant with that of the English equivalent "Mrs."

It is interesting although, perhaps, at times a little heart-aching to old Rose growers to take note of the discarded varieties, for once a Rose disappears from this authoritative list the chance of its ever regaining a place is remote. However, of the eighty or so discards from the 1925 edition, the vast majority are fairly recent introductions which have not "caught on," either through some marked defect, such as feebleness of growth, or else have been rapidly superseded by similar but better varieties.

Of Roses introduced this century—a convenient dividing line—some of the most striking omissions, taking them in chronological order, are Mrs. Theodore Roosevelt, J. B. Clark, Mrs. E. G. Hill, G. C. Waud, Melody, Donald McDonald, Joanna Bridge and Mrs. Elisha J. Hicks. None of these have I grown, so, as far as my feelings are concerned, they go without a regret. I am, however, a little surprised to see such a decorative variety as Joanna Bridge disappear so soon. Then there is one further very marked omission among the Roses introduced this century, namely, the Lyon Rose—the sensation of one of the shows of the first decade. Moderate growth and its liability to black spot may have been its undoing; but against these should be put its superb bloom, which both lasts and keeps its colour well in a vase. In the interests of the history of the garden Rose surely Pernet Ducher's wonderful creation, which ushered in a new race and introduced new colouring into our bedding Roses, should not be allowed to go out of cultivation.

Of Roses which saw the light last century, I have only been able to find three discards. Bessie Brown at last goes. This weak exhibition Tea variety has fairly well, one imagines, outstayed its welcome. The Noisette climbers are one fewer through the leaving out of Alister Stella Gray. This is rather surprising, as it is most vigorous, with a long flowering period. It may lack distinction, but it has the saving grace of fragrance, and is a useful rambler for an odd corner. The dwindling Hybrid Perpetuals are reduced still more by the rejection of Captain Hayward. Ulrich Brunner is retained. Of the two, I should prefer the Captain Hayward, but then Ulrich Brunner may be more of a success in the way of fulness and richness of colouring in the cooler and damper north-west than in the south-east.

The old H.P.'s are now reduced to four—Ulrich Brunner, Mrs. John Laing and Victor Hugo, dating from the eighties, and Général Jacqueminot so far back as the year 1853. It comes in the list next to another General, of much more recent date, also highly scented—the popular General McArthur.

Of recent Roses one looks in vain for William Kordes—a Hybrid Tea of distinction. It was introduced in 1923 and was included in the leaflet of newer Roses issued by the Society between the last and this edition. It was there described as being of moderate growth and best as a maiden. Lack of vigour is probably responsible for its exclusion. It is under trial in my garden, and as I write in mid-October there is before my eyes a fine bloom cut from a fairly vigorous plant which is not a maiden. I especially like this variety for its colour, stiff stalk and its indifference to rain. Another Rose, somewhat similar in character and most likely left out for the same reason, is Marie Adelaide. It is worth struggling with for its stout stalk and other desirable qualities in its flower.

The "Pruning" part of the publication barely calls for comment, as there is little in the way of alteration and addition. The instructions are very complete, and even the pruning of the Perpetual Scotch Rose receives some consideration. It is interesting to learn that the unique single Rose, Mermaid, has withstood 38° of frost. There is a warning against the over-pruning of extra vigorous dwarf Roses, when required only for garden decoration as opposed to exhibition, as if allowed, they are often capable of forming large bushes giving a greater wealth of bloom that can be got from bushes pruned in the orthodox fashion. Mrs. Wemyss Quinn, one of the earlier Pernetiana yellows, for example, has capabilities in this way if let alone. *Cumbrian.*

PLANTS NEW OR NOTEWORTHY.

HYPERICUM KOUYTCHENSE
(Wilson 256).

It has seemed to me strange that a plant collected by Mr. Ernest H. Wilson so far back as the year 1907, should have been so long without a name, and on writing to the famous collector asking him about it, I received a request for dried specimens of the plant for determination. In these days when so many plant collectors abound, and there are so many plants awaiting determination, it is always pleasant to replace a number with a name, but, alas, I am afraid that there are times when this may be done at the expense of convenience, for Mr. Wilson, with his ever ready courtesy and help, has now advised the name of this species, and relates that it suffers from the terrible name of Hypericum kouytchense, (Lévl.). Mr. Wilson terms this "an abominable name," and in this I concur heartily. He explains that it was coined by the French Roman Catholic Bishop Léveillé, and when he expresses the opinion that it would have been better had the worthy bishop been engaged in the matters of his cure, rather than "in twisting poor gardeners' tongues," I am inclined to think that every one of the readers of *The Gardeners' Chronicle* will heartily agree with this view. I am, however, recording the name for the benefit of those plant lovers who have this beautiful plant.

Among Hypericums, this species has a particular charm. In growth it forms a rounded hummock of darkish green leaves, and when its golden-yellow flowers appear, it is, indeed, "a thing of beauty," and one of the most attractive of its genus. A true shrub, flowering about the beginning of July, the medium-sized flowers are profusely borne, and it makes an ideal front rank plant for the shrubbery.

While dealing with plant nomenclature I venture to plead with the botanists who first give a name to a plant, to endeavour to render this in a way that it may be conveniently remembered, and pronounced with a measure of ease. Who, for instance, can properly wind their tongues around the name of the Chinese Mountain Ash that doubtfully rejoices in the terrible varietal name of "pohuashanensis"? It is difficult enough, in all faith, to even copy it down from print, and when it comes to pronouncing it—well, I do not wonder so many blunder over it. *E. Beckett, Aldenham Gardens, Elstree.*

INDOOR PLANTS.

HABROTHAMNUS.

The species of Habrothamnus are graceful, evergreen greenhouse plants from Mexico, with a branching, drooping habit of growth, producing from the points of their shoots handsome bunches of attractive flowers which open in succession over a long period. The natural habit of the plants is such that they can be grown in different ways, either as pyramids, or standards with drooping heads, in which latter form they are very effective for conservatory decoration; but perhaps they display their flowers best of all when trained on the roof of a cool greenhouse. They are good growers, succeeding well in a mixture of equal parts loam and peat with a moderate amount of sand.

Cuttings of young shoots about four inches long, taken off with a heel, placed singly in small pots filled with sandy peat, and stood in moderate heat, kept moist and shaded, will soon root. When rooted, pot them on into larger pots, keep them in a growing temperature, and give a little shade from bright sun. About the beginning of September, give more air, gradually accustom them to a lower temperature, and winter them in a house having a temperature of about 45° by night. Pot on into larger pots as they require it the following March and April, and keep the points of their shoots pinched out until the desired shape is attained, after which they may be left to flower, and will be found most useful. In the more favoured parts of the country H. (syn. Cestrum) elegans does fairly well planted out-of-doors, when given the shelter of a south-west wall. *J. N. McGoogan, Wisley.*

THE GENUS PRIMULA.

(*Continued from p.* 330.)

sikuensis (Balf. f.). Siku P.
(Cortusoides).

This richly-tinted, downy perennial is a subspecies of P. polyneura, Franch.; it produces a tuft of kidney-shaped or heart-shaped, elliptic blades about two inches long, on erect stalks from three to four inches long, clothed with long, shaggy hairs; margins divided into about nine palmate, bluntly-toothed lobes; both surfaces clothed with fairly long, glandular hairs. Flower stem hairy, four to six inches tall, bearing an umbel of reddish-purple blossoms, on glandular, downy stalks about three-quarters-of-an-inch long. Corolla tube about twice as long as the calyx.

Grows in shady places on the Siku range, in Kansu, north-western China.

Culture; As for P. sataniensis.

silaensis (Petitm.). Mount Sila P.
(Amethystina).

A beautiful, dwarf species with a tuft or rosette of smooth, non-mealy, papyrus-like leaves about one inch long, with oblong-oval blades truncate at the base and contracted into a short, winged stalk; margins edged with sharp teeth. Flower stem slender, two to four inches tall, bearing one to three deep bluish-purple blossoms in a terminal umbel, on stalks about one-eighth-of-an-inch long. Corolla widely bell-shaped, about five-eighths-of-an-inch across, with small, notched and toothed lobes.

This species is found on Mount Sila, between the Salween and Mekong Rivers, in Yunnan, western China, in moist, peaty soil.

Culture : As for P. amethystina.

SIMENSIS (Hochst.). Simen P. (Verticillata).

A handsome, robust, perennial sub-species of P. verticillata, Forsk., with a tuft of membranous, oval-elliptic, pointed leaves two to five inches long and one inch to two inches wide, narrowed to a short, broadly-winged stalk ; margins furnished with sharp, irregular teeth ; both surfaces smooth, or coated with meal. Flower stem four to twenty inches tall, bearing several superposed umbels of numerous yellow blossoms. Corolla about one-and-a-quarter inch across, with broadly oval, shallowly notched lobes ; tube cylindrical, slender, about one-and-a-quarter inch long. Introduced in 1870.

Grows in damp places on the mountains of Abyssinia, usually on limestone formations, in the provinces of Simen and Modjerate, reaching an elevation of about 11,000 feet above sea-level.

Var. eusimensis (Pax). Foliage more or less smooth and non-mealy ; large, often equalling the flower stem in length.

Var. farinosa (Schweinf.). Foliage more or less mealy, smaller, shorter than the flower stem.

Culture : As for P. floribunda. *A. W. Darnell.*

(*To be continued*).

NOTES FROM EDINBURGH.

October is not a month when one expects to see a great display of bloom in the rock garden, yet there are several subjects that are still prominent at this time.

Among the more important genera flowering now is Gentiana. Of this genus, Gentiana sino-ornata is without equal at this time of the year, with its hundreds of rich blue flowers ; even at this late season the beds of G. sino-ornata are still a wonderful sight. Gentiana Farreri is now finishing, although the recent fine weather has prolonged its flowering season, and one can still see the pale blue trumpets which have made this species so popular. Another species from western China, namely, G. Veitchiorum, is making quite a good display, although for colour and growth it cannot compete with either of the former. Gentiana Andrewsii, a native of North America, with dull blue, white-tipped flowers, helps to brighten a corner, and although the flowers do not open, the plant has a certain attractiveness of its own. The Willow Gentian, Gentiana asclepiadea, with its long, arching sprays of blue trumpets and bright green leaves, is still a worthy feature.

Primulas, unfortunately, are now over, with but one or two exceptions. Primula Mooreana is still prominent with its flat heads of purplish-blue flowers, while the giant Primula Florindae, although past its best, continues to flower cheerfully.

Of the other newer plants still in bloom, there is Dracocephalum Forrestii. This plant, collected by Mr. G. Forrest in western China, has pinnatifid leaves and great quantities of purplish-blue flowers arranged in whorls.

Among other late-flowering subjects in the rock garden, there are many of the older species worthy of attention. The small Polygonum vacciniifolium, covering the large boulders with its mat of green and brown and myriads of pale pink spikes, makes a pleasing picture. Along with this species, its coarser relative, P. affine, gives a certain amount of colour, with the reddish-brown spikes now forming seeds.

Composites continue to give a good display in their many genera. There is the dwarf Golden Rod, Solidago brachystachys, a mass of bright yellow flower heads withstanding all weathers ; the silvery-leaved Achillea ageratifolia, with pure white flower heads ; Odontospermum maritimum, with large, yellow flower heads and downy foliage ; and the very old Gazania splendens in all its glory, with the deep orange florets marked at the base. Unfortunately, the two latter are not quite hardy. Another tender subject giving a wonderful display at present is Verbena chamaedryfolia, with brilliant scarlet inflorescences borne above the bright green foliage.

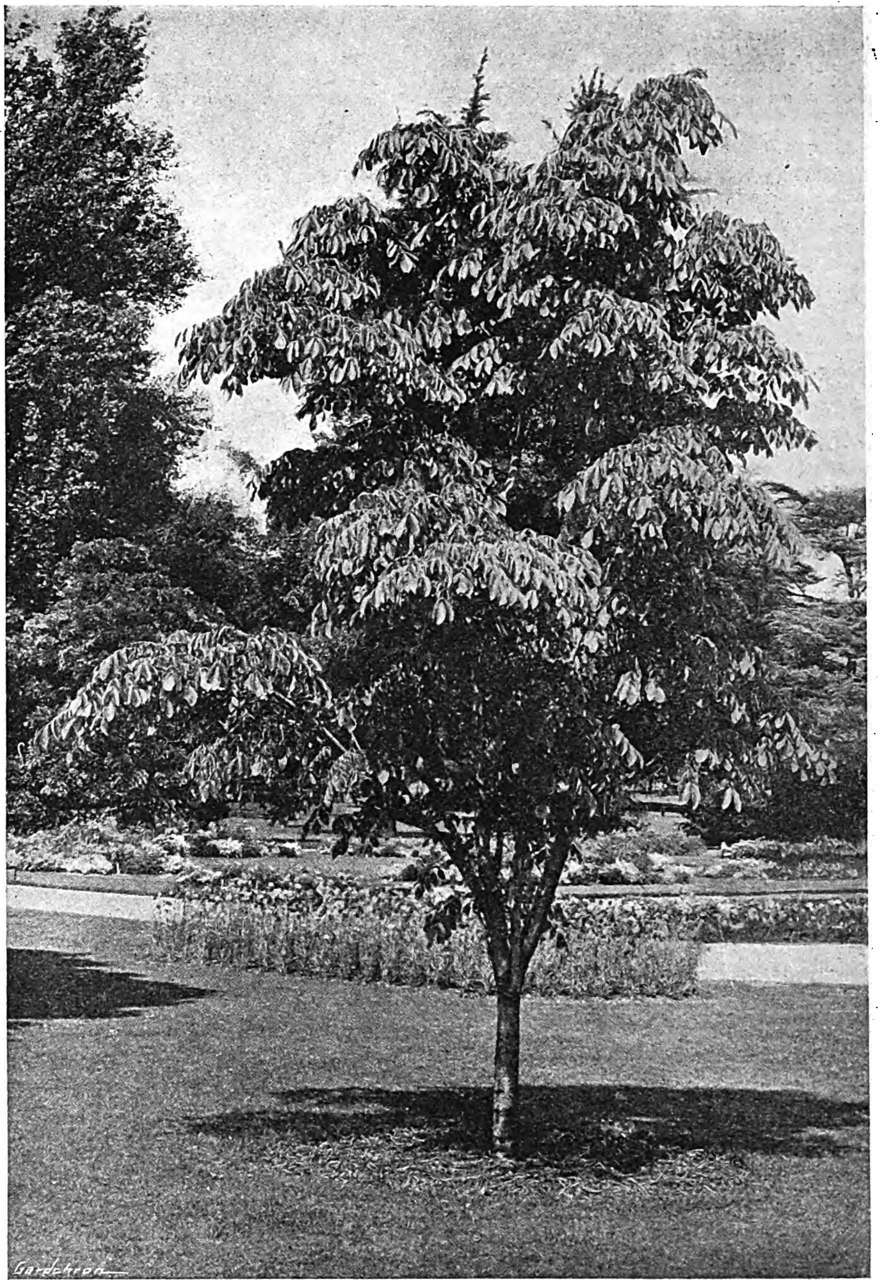

FIG. 160.—MELIOSMA OLDHAMII.

(see p. 347).

Many plants, although finished flowering, continue to beautify the rock garden with their fruits. This is very true of Clematis tangutica var. obtusiuscula, which has been allowed to ramble over the top of a mound, and is at present covered with its silvery seed-heads, among which can still be found several of the yellow flowers. Heaths and Heathers still do their share in the brightening of the mounds, the most noticeable being St. Dabeoc's Heath, Daboecia polifolia and its varieties ; Erica vagans var. kevernensis, and Erica stricta.

The dwarf Sea Holly, Eryngium prostratum, with its silvery bracts resembling collars, and purplish-blue heads, attracts attention. Although not so well coloured as some of its bigger brethren it is an outstanding plant with the flower stems radiating in all directions from the crown. On one of the lower beds, a clump of Astilbe chinensis var. pumila, with its dumpy, compact plumes, maintains its colour. Owing to the magenta shade of the flowers, this plant has not gained the popularity that the finer Astilbe simplicifolia hybrids have, yet it has many supporters. The popular Lithospermum prostratum and the Heavenly Blue variety, maintain a steady crop of flowers.

Among other floriferous plants, mention may be made of the Erodiums, especially Erodium chamaedryoides, from the Balearic Islands, and its variety rosea, both of which have kept up a succession of tiny flowers throughout the summer and are still struggling to maintain it. Many of the other Erodiums have done equally well, but they have not the neat and tidy habit of E. chamaedryoides.

The dwarf Violas, such as the varieties Lady Crisp and Pink Pearl, flower steadily on, and if the fine weather continues, should continue to brighten many places on the rock garden. *W. W., Royal Botanic Garden, Edinburgh.*

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Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

PROBLEMS OF PLANT LIFE.*

XII.—The Significance of Bloom.

In his anxiety to obtain light on this subject, Darwin addressed a letter to Dr. Asa Gray in June, 1877, in which he wrote :—

"I am now trying to make out the use or function of 'bloom,' or the waxy secretion on the leaves and fruits of plants, but am *very* doubtful whether I shall succeed. Can you give me any light? Are such plants commoner in warm than in colder climates? I ask because I often walk out in heavy rain, and very few wild Cotyledons can be here seen with drops of water rolling off them like quicksilver; whereas in my flower garden, greenhouse, and hothouses there are several. Again, are bloom-protected plants common on your *dry* western plains? Hooker *thinks* that they are common at the Cape of Good Hope. It is a puzzle to me if they are common under very dry climates, and I find bloom very common on the Acacias and Eucalypti of Australia. Some of the Eucalypti which do not appear to be covered with bloom have the epidermis protected by a layer of some substance which is dissolved in boiling alcohol. Are there any bloom-protected leaves or fruits in the Arctic regions?" He addressed similar questions to Professor A. de Candolle.

If such were the problems which so recently presented themselves to a man of wide scientific culture, what must have been the state of knowledge in general?

Although we do not possess copies of all the replies which Darwin received, we know that he was started on new lines of research by such authorities as Sir W. Thiselton Dyer, Dr. Hooker, F. Müller and others. Thus Hooker suggests that the waxy coat and hairs of plants subserve some purpose connected with the actinic or chemical rays of the sun, especially as the waxy secretion is often more conspicuous on the upper than on the lower surface of leaves. "I can quite fancy water impeding both the actinic and the calorific effects of sunlight on the leaf. We find watering most prejudicial in the hot sun. It is a splendid subject for experiments." Dr. Hooker adds that the prevalence of indumentum on the under surface of leaves is in some cases, perhaps, a provision against the attacks of insects. Such, too, he thinks, must be the use of wax and other secretions, and the end for which leaves and fruits are provided with crystals, acids and other active principles.

In 1887, Hillhouse's translation of Professor Strasburger's *Practical Botany* was published, and we were able to mark progress. It was found that 'bloom' was only one of many devices employed by plants for a great variety of ends. One must take along with it the study of gums, resins, crystals, hairs, glands, and other deposits and growths; and study not only leaves and fruits but buds, nodes, and every part of the plant. Strasburger took, for example, the winter bud of the Horse Chestnut with its secretion of gum and resin; the leaves of the Iris (I. florentina), the outer surface of the epidermis of which is covered with a fine, granular layer of wax, and such plants as Echeveria, Eucalyptus and the common Sugar Cane. The facts which he presents are full of interest, but the student is left to draw his own conclusions as to the ends which the secretions serve. No attempt is made to answer the question respecting the ends to be served, and for the pure botanist the problem is one apparently of no importance, He observes and records his observations, but that is all. It is just here that men like Darwin, Wallace, Romanes and similar enquirers come in to propound their queries and demand an answer. Without going further into the history of the subject during the last half-century, we may try to sum up some of the results of these investigations.

And first, a suggestion respecting bloom on fruits. It is a striking fact that purple fruits seem to be especially noteworthy in this respect. But why should purple Grapes, blue Plums, Sloes, the fruits of Mahonia, Whortleberries, and many other plants have this waxy coating, while related fruits which are yellow or red are left unprovided therewith? Here, undoubtedly, there is some relation between colour and the ultra-violet or other rays of light; and here, too, there is still room for careful research In relation to fruits we do not hesitate to say that the purple-coloured forms with a waxy secretion are able to utilise special light rays.

That bloom protects fruits, leaves and blossoms against pestilential germs, microbes, parasitic fungi and insect marauders is clear. Darwin removed the wax from leaves of a plant and syringed them with water at 95°. After a lapse of two days they were covered with a fungoid growth and looked as though they had been sprinkled with soot and water. The younger leaves, however, from which the bloom had not been removed were entirely unaffected, showing, it would seem, that spores cannot grow while the wax is intact. Where the secretion forms a thick layer, it might easily prevent insects from doing injury, especially if their mandibles are weak or easily clogged with a sticky substance.

In the next place, bloom checks evaporation, affects transpiration, and regulates temperature. Doubtless, Grapes and similar fruits benefit by the secretion which covers their fruits, since it keeps them from becoming too hot and dry. Stahl suggested, in 1897, that if moisture remains on the leaves of plants it checks transpiration. By lessening the activity of the plant and preventing the using up of the salts held in solution this would affect nutrition and interfere with the process of assimilation. And it is just here that there comes in the subject of nap, pile and hairs, as well as bloom. Darwin's work consisted largely in attempts to show that these things were primarily concerned, along with the voluntary movements of leaves, in throwing off superfluous moisture. He writes, in September, 1877, to Sir W. Thiselton Dyer to say he has clearly made out that with some plants, especially those which are succulent, bloom checks evaporation and diminishes transpiration. One obvious effect of the waxy coat or bloom and the layer of fine hairs was, he said, to keep off water. This end is clearly subserved in the case of such plants as the Bog-Bean, both by the gloss on the leaves and the fringe of hairs in the blossom. We may compare, also, the flowers of the Bog Pimpernel; but these plants will come up for consideration when we deal with the problem of the bog.

Where bloom is wanting, and the hairy pile is absent from fruits and leaves, a gloss is often present, which serves the same purpose. In one of his letters on the subject, Darwin remarks that when these are "immersed in water, they appear as if encased in thin glass. It is really a pretty sight (he adds, although the expression is not very well rendered) to put a pod of the common Pea, or a Raspberry into water," and everyone must agree that the appearance is remarkable.

In regard to the glaucous plants found in deserts and on the seashore, the ends to be served may be different. Shore plants might be injured by salt water if they were not protected by some resistent, while desert plants would respire too rapidly. On the latter point, a good deal has been discovered in recent years, but here a whole series of new problems is presented and to deal with these requires that we attack our subject from a new point of view. *Hilderic Friend.*

THE MELIOSMAS.

About fifty species of Meliosma, deciduous and evergreen trees and shrubs, have been named and described by botanists, but comparatively few of these are in cultivation. They are mostly natives of eastern and southern Asia, but are also represented in tropical America. The genus, it would appear, was represented by one species only out-of-doors in British gardens until the opening years of the present century. This was Meliosma myriantha, a Japanese and Korean species, first introduced by Maries in 1879.

In *Plantae Wilsonianae*, Mr. E. H. Wilson records that thirteen species are natives of China, eight with simple leaves and five with pinnate leaves. Of these, at least six are in cultivation in British gardens; M. Beaniana, M. cuneifolia, M. Oldhamii, M. pendens, M. tenuis and M. Veitchiorum—all introduced by Wilson. The Himalayan M. dilleniifolia, and M. myriantha were both introduced by Maries.

Cultivation.

I remember reading in *The Gardeners' Chronicle* some years ago a note by Mr. George Forrest on Meliosma cuneifolia. He described the shrub as "revelling in sunshine on the sheltered margins of deciduous forests, generally near streams or some other source of permanent moisture." Following this information, most of the Kew specimens are planted in positions where the ground and lower parts of the stems are sheltered from the fierce rays of the mid-day sun. They thrive in a good loamy soil with peat and leaf-mould added, and also plenty of coarse grit should the ground be close and heavy.

In the case of M. cuneifolia and M. myriantha, seeds are available as a means of propagation. There is no difficulty in layering or rooting cuttings of the simple-leaved species in a close propagating frame with slight bottom heat during July and August. It is also possible to root an occasional shoot of the pinnate-leaved species, but growths suitable for rooting are not numerous on plants grown in the open air.

The derivation of the name Meliosma is interesting, as it is from the Greek *meli*, honey, and *osma*, odor, in reference to the honey-like fragrance of the flowers.

M. Beaniana, Rehd. and Wils.

According to Mr. Wilson, this is one of the handsomest and most striking of Chinese trees. He describes it as thirty-six to seventy-five feet in height, nowhere common, but occurring scattered throughout western Hupeh and Szechuan, at altitudes of between 3,000 and 4,500 feet. The pinnate leaves are five to ten inches long, with five to thirteen ovate to elliptic-lanceolate leaflets, averaging two to two-and-a-half inches long and one inch broad, with axillary tufts of hairs beneath. We await with interest the first flowering of this tree in our gardens, as Mr. Wilson describes it as a remarkable and well-marked species.

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* Previous studies appeared in our issues of April 13 (p. 279). June 15 (p. 446), Vol. LXXXV; July 13 (p. 30). July 20 (p. 50), July 27 (p. 71); August 17 (p. 130), September 7 (p. 187), September 14 (p. 207), September 28 (p. 247), October 5 (p. 268), and October 12 (p. 288).

The tree is distinguished at once in flower from all other members of the genus by its precocious blooms, borne in axillary panicles. They are creamy-white, and relatively large for the genus. The spreading and pendulous panicles four to six inches long and two to four inches in diameter, are strikingly conspicuous on the wild trees in May before the full development of the leaves.

The specimen of this Meliosma at Kew was raised in 1908 from seeds (Wilson 258) collected by Mr. Wilson in western Hupeh in September, 1907. It is now twelve feet six inches in height and ten feet through the branches at their widest part.

Mr. Wilson records M. Beaniana as associated with temples and wayside shrines. In Hupeh, the tree is colloquially known as the Ku-ku-lan-shu.

M. PENDENS, Rehd. and Wils.

This is one of the simple-leaved species most closely related to M. cuneifolia, but it has drooping flower panicles and the bushes are not so vigorous in habit.

Wild bushes average from nine to fifteen feet in height. The leaves are elliptic-obovate, three to six inches long and one-and-a-half inch to two-and-a-half inches wide, with twelve to twenty pairs of prominent veins. This species lacks the tufts of hairs conspicuous in the axils of the veins of M. cuneifolia. The terminal panicles of small, fragrant, white blossoms develop during July. They are pendent—hence the specific name—averaging five or six inches long and four to five inches wide. The small, Pea-like fruits are black when ripe.

Mr. Wilson introduced this Meliosma by means of seeds collected in western Hupeh, in 1907, where the species grows at 2,000 feet to 4,000 feet elevation.

M. VEITCHIORUM, Hemsley.

As an ornamental deciduous tree, hardy in our gardens, this is the most remarkable of all Meliosmas (Fig. 161). It is an upright-growing tree of stout appearance, thirty to forty-five feet high, with remarkably distinct, pinnate leaves. These are fifteen to thirty inches long averaging nine or eleven leaflets, ovate to ovate-oblong, three to seven inches long. Mr. Wilson describes the flowers as greenish-yellow, and honey-scented, produced in much-branched, pendulous panicles, seven to twenty inches long, and six to twelve inches wide at the base. The fruits are black.

M. Veitchiorum was described from dried specimens collected by Mr. Wilson in Eastern Szechuan, in June, 1901. The first plants cultivated were raised from seeds collected by Mr. Wilson later, in the same year, the Wilson-Veitch number being 754.

Two vigorous young trees are growing at Kew, one obtained from the Coombe Wood nursery in 1909, and a second in 1913. The taller of the two trees is nineteen feet in height.

Mr. Wilson describes this very distinct and interesting tree as abundant in the moist woods throughout Hsing-shan Hsien and Fang Hsien, in Hupeh, but it is not recorded from western Szechuan. It occurs at elevations between 4,000 and 7,500 feet. Having passed quite untouched through the severe frosts experienced last winter, it is evidently a hardy tree. It has a relatively thick trunk and branches, with the strikingly large, pinnate leaves clustered at the ends of the rigid branches.

M. OLDHAMII, Miquel.

This pinnate-leaved species is named in compliment to Richard Oldham, a Kew collector, who discovered this Meliosma in the Korean Archipelego in 1863. Pére Farges collected it in Szechuan, and Dr. A. Henry in Hupeh. The tree illustrated (Fig. 160) was raised from seeds collected by Mr. Wilson in 1900. He describes the tree as up to sixty feet high with a girth of seven to eight feet. It occurs in moist woods and thickets in western Hupeh, at an elevation of from 3,000 to 4,500 feet. As the illustration indicates, in young trees the branches are inclined to be somewhat erect in growth, but Mr. Wilson describes the old trees in a wild state as widespreading, with symmetrical heads.

The pinnate leaves are from six to fifteen inches long composed of five to eleven leaflets. The leaflets vary in size on a leaf, the lowest pair being about one inch long and three-quarters-of-an-inch wide, increasing in size along the leaflet, the terminal one being in-

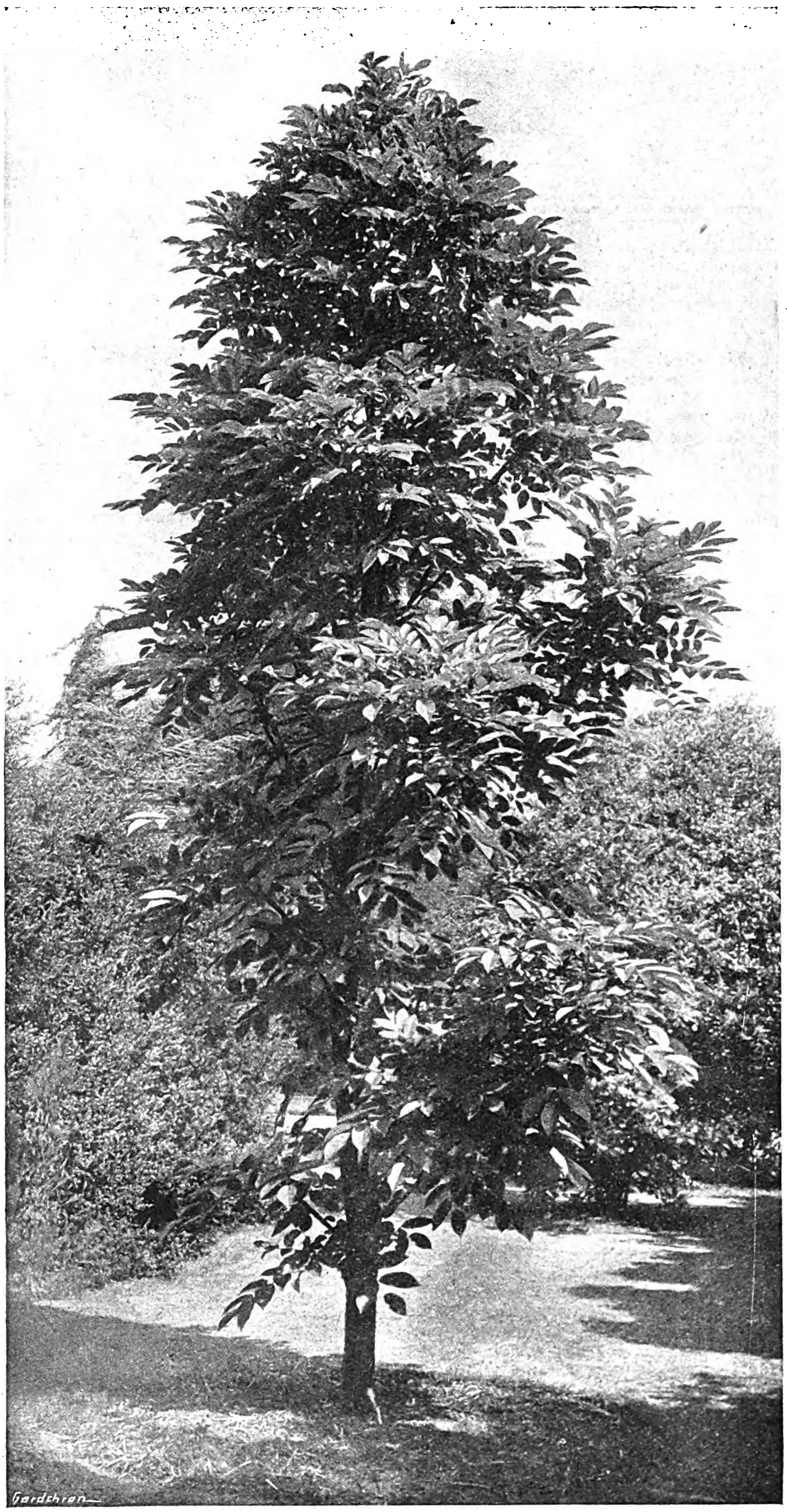

FIG. 161.—MELIOSMA VEITCHIORUM.

variably the largest, up to five inches long and two inches wide.

Dried wild specimens indicate the inflorescence to consist of a terminal panicle, with smaller panicles in the axils of the upper leaves, the whole being from about five to nine inches long and broad. The very small, pure white flowers are fragrant and very freely produced in June, when the leaves are nearly fully-grown.

The tree of M. Oldhamii was presented to Kew by Messrs. J. Veitch and Sons in 1913, from the Coombe Wood nursery, and was raised from seeds collected in September, 1900, during the first Wilson-Veitch expedition. The tree is now fifteen feet nine inches in height.

M. CUNEIFOLIA, Franchet.

Mr. E. H. Wilson describes this species as exceedingly common throughout western Hupeh and Szechuan, growing in thickets and on the margins of woods at from 3,000 to 4,500 feet altitude. Mr. George Forrest found it on the southern flank of the Lichiang range at from 8,500 to 10,000 feet. It occurs as a large bush or small tree, up to twenty-four feet high, rarely as much as thirty feet in height. Mr. Wilson collected his first seeds of this species in 1900, and the first plants flowered in the Coombe Wood nursery of Messrs. J. Veitch and Sons in July, 1909.

It is a simple-leaved species; the leaves are obovate, four to seven inches long, and two to three inches across at the widest part, dark green above, paler beneath, with twenty to twenty-five pairs of prominent veins and tufts of down in the axils of the veins.

The small, creamy-white, or white flowers, are produced very freely during July at the ends of the growths of the year in large, pyramidal panicles up to seven or eight inches long, and nearly as much through. The flowers are powerfully fragrant with a honey or Hawthorn-like fragrance. The small, Pea-like fruits are black and mature ripe seeds which provide a ready means of increase, as also do half-ripe shoots inserted as cuttings in a sand frame during July or early August.

M. cuneifolia makes an attractive lawn shrub for a sheltered position, forming as it does a bush of spreading habit. The best specimen at Kew is twelve feet high, and almost as much in diameter. It is illustrated (Fig. 159) and was obtained for Kew from the Coombe Wood nursery in 1910. As the figure suggests, M. cuneifolia is closely allied to the Japanese and Korean M. myriantha, but it is much hardier, and is readily distinguished by the cuneate leaf.

M. MYRIANTHA, Sieb. and Zucc.

This interesting Meliosma is a native of Japan and the Korean Archipelago. It was first introduced from Japan by Maries in 1879 when collecting on behalf of Messrs. J. Veitch and Sons. The bush first flowered in their Coombe Wood nursery in 1893. The best specimen I have seen, other than the one at Coombe Wood, is growing at Grayswood Hill, Haslemere, where it flowers freely and ripens fruits.

M. myriantha forms a large, rather spreading, deciduous bush or small tree up to some twenty feet in height. The oval-lanceolate leaves are up to eight inches long and three inches wide. The veins of the leaves vary from twenty to thirty pairs. The terminal panicles of yellowish-white flowers are produced at the end of June and although small are very fragrant.

It is only in sheltered gardens and warm districts that M. myriantha is really satisfactory. Plants grow in sheltered positions outside at Kew for a few years but succumb during severe winters.

M. TENUIS, Maxim.

This Japanese Meliosma was introduced in 1915. It belongs to the simple-leaved group and has prominently-toothed leaves, one inch to three-and-a-half inches long, with ten to fifteen pairs of veins.

A plant growing on a sheltered south border at Kew failed to survive the severe frost of last winter, thus proving it is not to be compared in hardiness with the Chinese species. M. tenuis may only be expected to thrive really well in the sheltered gardens of the south and west, where another Japanese species, M. myriantha, flowers and fruits freely.

M. DILLENIIFOLIA, Wall.

This Himalayan species was introduced to cultivation in 1924. The Kew specimen was received from the Arnold Arboretum in 1927.

It is described as a small tree up to twenty feet in height. The simple leaves are obovate to oblanceolate.

The plant does not appear to be so hardy as the Chinese species, being more comparable in this respect with the Japanese M. myriantha, and, in common with that species, cuttings are easier to root than are those of the pinnate-leaved species. *A. Osborn, Kew.*

AN ENGLISH GARDENER IN CHILI.

(*Concluded from p.* 328.)

A CHUSQUEA, known as Coligue, grows so rank that it is impossible to force a way through it, and not content with that it climbs up among the branches and in some parts simply smothers everything else. It is peculiar in that its stems are not hollow as in most Gramineae.

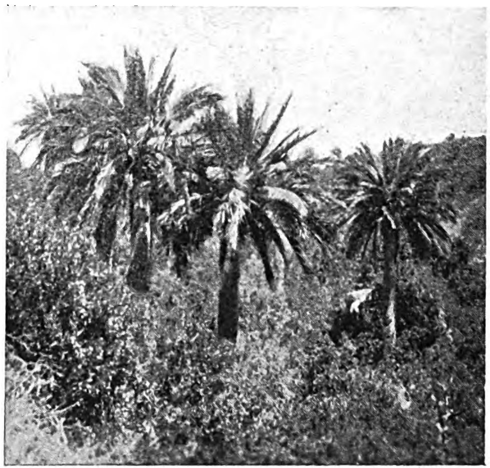

FIG. 162.—GROUP OF JUBAEA SPECTABILIS NEAR EL SALTO, CHILI.

The undergrowth of these slopes is both varied and interesting; in the shady parts a brilliantly-flowered shrub with butterfly-like, orange flowers makes splashes of colour. It certainly belongs to the Leguminosae, and, I believe, is Cassia stipulacea; this grows about six feet tall and appears to require a moist, although well-drained and shady position. These conditions also suit to perfection a large species of Adiantum, which carries fronds two feet high and broad in proportion, and which grows here by the acre.

In slightly more open and sunny positions there are quantities of a scarlet Amaryllid, probably Hippeastrum bicolor (syn. Phycella ignea). The earliest flowers are distinctly bicolored, green towards the ovary, but later in the season are practically pure scarlet. Another of the very earliest spring flowers is Tropaeolum tricolor; this climbs by means of its flexible leaf-petioles which curl around branches or twigs; it covers comparatively ugly, leathery-leaved evergreen shrubs with festoons of bright green leaves and small, scarlet flowers set on long, slender peduncles. The thin rhizomes spread about among the fallen leaves and roots of the undergrowth making it almost impossible to lift this treasure successfully, while it is almost as difficult to obtain seeds, as its flowers disappear in an incredibly short time. The same remarks apply equally to the less common yellow-flowered species, Tropaeolum brachyceras.

In open, sunny situations various species of Alströmeria flourish, but I am not sure as to their identity. The best I have seen is two feet high, or even more, when growing in gravel, where it receives water in the growing season and is bone-dry afterwards; its flowers are brilliant orange, with the two lateral perianth segments yellow, flaked with scarlet; and the compound umbels bear fifteen to twenty large blooms. A low-growing species has white flowers with a yellow zone in the centre of the lateral pair of segments. There are also a salmon-pink, self-coloured kind which is quite common, and a maritime species which has large, bright rose and white flowers. Among other more lowly subjects which are worthy of note here, is a violet Anemone with solitary flowers about six inches high, a bright carmine Oxalis (perennial) common in some localities, and a well-known greenhouse subject, Alonsoa incisifolia.

Towards the top of these slopes, where they merge into the comparatively flat land, and are protected from the full force of the winds but receive full sun, are frequent open spaces, and it is in these that some of the most beautiful of Chilian wild flowers are to be found.

One of the prettiest and earliest to flower is the tall-growing Pasithea coerulea, a monotypic herbaceous perennial, belonging to the Liliaceae; the foliage is equitant, not unlike that of some Sisyrinchiums, but more arching and less tough in texture; the inflorescence is three feet to five feet high, erect, somewhat stiff in habit, and carrying numerous, star-like, clear blue flowers about an inch in diameter. The root system closely resembles that of another well-known Liliaceous plant—Asparagus Sprengeri—while the thin, wiry, fibrous roots swell out into small, fleshy, elliptical tubers which enable the plant to survive the long drought. In company with this are found three other good blue flowers, the brilliant little Triptilion spinosum, which forms compact clumps of blue six to twelve inches high; Tecophilaea violaeflora, also low-growing, the flowers being generally (although not always) solitary, arising from the centre of a single linear "leaf," about six inches long by three-eighths-of-an-inch wide, in a manner suggestive of a small Tulip; this little plant makes up in profusion what it lacks in size.

The third of this trio is a bulbous subject about one foot high which I believe to be Conanthera bifolia; the inflorescence is produced in the absence of leaves, as these are produced early, matured and dried off before the flowering period. It is a most variable plant; in some cases it has campanulate flowers of deep violet, while in others the colour is light blue, with reflexed perianth segments, and the stamens projecting forward in exactly the same manner as those of the Potato flower. At first I thought them distinct species, but there are intermediate forms and colours and the bulbs appear to be identical. There are numerous other bulbous plants belonging to both Liliaceae and Amaryllidaceae, Scilla chloroleuca being the most common, while a white species of Leucocoryne is pretty, but marred by its strong Alliaceous odour.

Several species of terrestrial Orchids thrive on these banks, especially on heavy loam and gravel; three of them I consider worthy of cultivation, and the others at least rank equal with our native Orchids. The best of these I believe to be Chloraea aurantiaca, which grows two feet to three feet high, the spike carrying so many as ten or twelve large, golden flowers, each fully two inches across; the labellum is lined with dark green excrescences, and the tips of the lateral perianth segments are dark green. A white species, equally as vigorous but not so tall (Chloraea ulanthoides) has flowers as large but more enclosed and funnel-shaped, the guide lines on the labellum being dark green; there are dark blotches at the tips of the labellum and each of the two lateral perianth segments, while the whole is beautifully lined and shaded with green. The third species is more curious than beautiful, the labellum and two perianth segments being white, shaded and lined with green, the other three being green, the dorsal one arching over the centre while the two lateral segments spread out and have long fringes, giving the whole inflorescence a most curious appearance. This is Bipinnula mystacina. All these have fleshy roots about as thick as a finger and four inches to six inches long; they flower and seed in early summer and die off completely until the first rain of the following winter. In conclusion, I would like to add that I have brought back seeds of the Orchids and several other subjects mentioned, and would be pleased to distribute them among those especially interested. *G. Robinson.*

VEGETABLES AND FRUITS IN USE IN THE EIGHTEENTH CENTURY.

There is no doubt that, to the great benefit of the health of the nation, the English people have been gradually learning the value of vegetable foods.

In the days of Queen Anne, when a Sussex gentleman invited a dozen neighbours to dine, his idea of hospitality was meat, meat, and more meat! The meal began with "Plum pottage"—the very strongest beef broth, enlivened with Currants and spice. Two whole roast pigs were served, a boiled leg of mutton, a roast leg of veal, boiled beef, a goose and four fowls! This was washed down with a fearful amount of strongly alcoholic drinks. No wonder that the guests required to be "blooded" frequently, and that scurvy and similar diseases were prevalent.

In a quaint old cookery book, *The Experienced English Housekeeper*, published in 1773, and signed (in a very illiterate scrawl) by the author; Elizabeth Raffald dedicates her work in a tone of fulsome flattery to her late mistress, Lady Elizabeth Warburton, begging her to excuse the "plainness of the style" as "I have studied to express myself to be understood by the meanest capacity." It ends, "I think myself happy in being allowed the honour of subscribing, Madam, your Ladyship's most dutiful, most obedient, and most humble servant!" Truly methods of expression have moderated, so well as meat consumption! The author had considerable faith in the "meanest capacity," for in the nine hundred original recipes, no time needed for cooking is mentioned, although in making "German puffs"—the modern dough nut—directions are given to "beat them an hour or more," before frying.

A large number of the recipes are for absurdly elaborate sweet dishes—"How to make a Solomon's Temple", or "a Thatched House pye," and cover them with "cages made of spun sugar." The richness of the edibles sounds terrible to modern digestive powers:—"Twelve yolks of eggs" in a single pudding, and a whole pound of butter in the sauce! "A common custard" was to be made of a quart of cream and eight yolks of eggs. Economy was quite beneath the author's consideration, but, of course, eggs and cream were cheaper in those days, although the imported eatables—sugar, raisins, spice and the multitude of Lemons used—must have been a costly item in the household budget.

The recipes for cooking vegetables are very few. Potatos are only once mentioned, when they are to be scalloped with much butter and browned in a Dutch oven. Evidently that most useful of vegetables was not in common use, although the plant had been brought to Europe in the sixteenth century.

We have heard of English folk newly returned from the Continent rejoicing in "a nice, clean, boiled Potato," without other flavourings, and the present taste would not approve of Mrs. Raffald's recipe for stewing Celery with "a slice of Lemon a little beaten mace, a good lump of butter, the yolks of two eggs, half a nutmeg grated, and a tea-cup of good cream." Parsnips, also, were to be beaten up with butter and cream to resemble a very light custard. The recipes for boiling Cabbage, "Colly flower" and French Beans all end with advice to serve them with "very rich melted butter." Windsor Beans, in addition to this, might "be served with bacon in the middle, if you choose it."

Almost the only recipe which mentions Lettuces directs that they shall be cut in slices and fried in fresh butter, and dished up with green Peas, in good gravy, flour and butter. Spinach was to be first boiled, then fried in butter pressed between two pewter plates, and covered with poached eggs. Cucumbers, after being fried in fresh butter, were to be covered with a large glass of red wine, strong gravy, mace, and a good thickening of flour and butter. Asparagus was served on bread, with butter sauce, much as it is now, and for an "Asparagus amulet"—which was Mrs. Raffald's way of spelling omelette—the boiled tips were fried with eggs and served on buttered toast.

The only hint of vegetarian cookery is an "Herb pye for Lent." "Take Lettuce, Leeks, Spinage, Beets and Parsley of each a handful, give them a boil, then chop them small, and have ready boiled in a cloth one quart of groats, with two or three Onions in them, put them in a frying-pan with the herbs, and a good deal of salt, a pound of butter, and a few Apples cut thin, stew them over the fire, fill your dish or raised crust with it. Bake it, then serve it up." Large Spanish Onions are mentioned as a soup ingredient, but there is no recipe for cooking them as a vegetable.

At the end of the book—as in modern publications—there are lists of food in season, and here only Jerusalem Artichokes are mentioned; but the other Artichokes, of which the large flower heads are the edible part, have several elaborate methods of cooking devoted to. The seasonable lists are puzzling, for although hot-houses are only mentioned in January for Cucumbers, one could hardly expect to find Endive, Lettuces, Mint, Asparagus and Mushrooms in the open air at that bleak season.

Several of the vegetables and herbs cited have now practically passed out of use, such as Hyssop, Tansy, Skirrets, Scorzonera, Rocambole, Tragopogon—the latter, I imagine, a relative of the wild Meadow Salsify, or "John-go-to-bed-at-noon." Finocks and Purslane are in the July list, Cardoons and Charbeets in October.

The fruits given remain much the same except that Medlars are not now popular, and few would care to eat Service Berries, when sleepy, like an over-ripe Pear, as the writer had done many years ago. "Lazaroles", too, is an unknown kind of fruit. In those pre-game-law days, pheasants were "seasonable in July and August," but partridges are not mentioned until September. Oysters are not given in March or April, but otherwise they follow the present rule of being in season "when there is an 'r' in the month."

There is a simple recipe for Apple dumplings, but Gooseberry pudding is a wonderful concoction of mashed fruit, sugar, Naples biscuits, six eggs, and the inevitable "half-pound of butter." Our ancestors must have had a great liking for greasy dishes. Apple fritters are much as at present, except that a modern cook would prefer milk to ale for the batter, but the next recipe is puzzling—"Clary fritters," when dried leaves of Clary were dipped in batter and fried. What we now call Clary is the blue wild Sage, and one would not imagine that the flavour of Sage leaves would combine well with cream, sugar, Nutmeg and Seville Oranges A Tansy fritter was to have only the juice of that aromatic herb, with a warning not to use too much, as it will make the pancake bitter.

One surprising recipe is a Yam pudding. It seems strange that Yams should have been imported in those far-off days. "A middling white Yam" was to be pounded with three-quarters-of-a-pound of butter, twelve eggs, Rose-water, mace, Cinnamon and Citron. When it comes to pickles and preserves, Mrs. Raffald is in her glory. "Colly flowers," Walnuts, Nasturtiums, Radish pods, Parsley and Samphire as well as Red Cabbage and Onions, were scalded in "allegar" with many flavourings, but Walnuts in syrup seems a curious dainty. Two kinds of pickle were made from Elder shoots and Elder buds, flavoured with Mustard seed and Horse Radish.

One chapter is devoted to "Possets—broths and gruels." I imagine this is sick-room cookery, but here, again, a quart of cream and six eggs with a glass of brandy would be rather strong meat for the average invalid.

Not only Mushrooms, but Truffles and Morels are frequently mentioned for flavouring of meat pies and "Ragoos." These would not often be obtainable, for the Morel, a rare fungus, looking like a piece of coarse, drab sponge, is only to be found near woods in early summer, although they might be dried. No mention is made of stewed fruit, or of salads, and it is evident that vegetables and fruits were but a small item in the diet of our ancestors two hundred years ago. *Maude Robinson.*

NOTICES OF BOOKS.

Garden Design.

In this book* on garden construction and design we have an example of the result of that most difficult and most unsatisfying of tasks—the making of a new book out of the materials used in an old one. Such a book has neither the interest of antiquity nor the freshness of youth; it is too apt to retain the faults and drawbacks of the original, while adding thereto the lacunae and inaccuracies commonly incidental to the first edition of any technical work, but M. Péan has apparently undertaken his task—that of revising and bringing up to date the work of his father, the late Armand Péan, *L'Architecte Paysagiste*—from motives of filial piety, but we cannot help thinking it would have been more satisfactory to himself to have written a completely new book, which would have been more likely to interpret correctly modern French ideas on gardens and garden-making. That he has the capacity and the qualifications for such a work there can be no doubt; as a landscape gardener he has a well-merited reputation, and has had considerable experience in his métier. That he should, as it were, conceal his own reputation behind that of the late Armand Péan is a sign of praiseworthy modesty, no doubt; but modesty finds so little appreciation nowadays, and is especially so little looked for in authors, that we fear none of the readers of the book will attribute its defects to such a cause.

Of these defects, the worst is the very one which its title would least lead one to expect, namely, its want of modernity. Except for a few photographs thrown in together at the very end, without any coherence, or relevance to the text, the illustrations are all wood-cuts, the overwhelming proportion being reproductions of formal gardens of the eighteenth century. As practically no reference is made to them in the text, it is difficult to ascertain whether these are inserted as examples to follow, or as warnings of the sort of thing to avoid. The position of the illustrations is no less irrelevant than their nature. For instance, there is a section, in the part of the book entitled "Pratique," on the instruments to be used in surveying. No illustrations of these instruments appear or are referred to in the article, and the reader is not encouraged to hope he will find them elsewhere, for on p. 67 we read:—"*Nous n'avons pas a faire ici un cours de topographie, il en existe d'ailleurs d'excellents.*" This would seem to indicate that a special book on the subject should be consulted; nevertheless, on reaching p. 203, we find, not only a quite good and detailed chapter on topography, but illustrations of all the instruments mentioned both there and in the article on surveying on pp. 66-68! No doubt this confusion is one of the many evil consequences which follow on the addition of subsequent matter to a book, without a perfect revision of the original text. The only illustration with which the chapter on surveying is enlivened is a plan resembling at first glance an ornate tea-tray, which, on consulting the caption turns out to be "*Parterre d'Orangerie (xviiie siècle) d'après Galimard.*"

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* *Le Nouveau Jardiniste Moderne.* Par Prosper Péan. Paris, Librairie de la Construction Moderne, 13, Rue de l'Odéon.

In the chapter on the drawing of plans, one would expect from a practical garden-architect some useful lessons for the beginner, as well as advanced instruction from which a qualified designer could benefit, but the section is disappointing. Some model plans are indeed given, but they are far too detailed and fussy for modern use, and only one set is supplied, unless one can count eleven illustrations of gardens and parts of gardens, none of them less than a hundred years old. A few really simple plans for the laying out and planting of small and unambitious pieces of ground would have been infinitely more informative. Incidentally, in recommending colours for use of plans, the writer mentions Rowney's, but does not seem to have heard of Winsor and Newton. In giving directions for the clearing of a waste space and removal of surplus ground, he assumes that horse-traction will be the only alternative to man-power; the use of the now ubiquitous motor-lorry would appear to be outside his cognisance.

The chapter on legislation as it affects the surveyor and landscape gardener is interesting, and if up-to-date, useful, but as no legislation later than 1898 is mentioned, it would probably be safer to consult a good lawyer than to rely on the information given in this chapter in case of litigation. Chapters VIII and IX are devoted to the fees earned by the landscape gardener, and the proper way to draw up an estimate and render an account. These contain quite useful information, although, as the scale of fees is based on a scale drawn up in 1921, we fear that for present use it would require modification.

By way of bibliography, or, perhaps, merely with the idea of letting his readers know of the existence of books which would interest them, the author gives a partial list of works on gardens—with and without illustrations—which have appeared up to the end of the nineteenth century. Why he should have stopped short here is not very clear; he states, as a reason, that books published after 1900 are well-known, and easy to find, but it would certainly have enriched the list if it had contained for instance, the works of Thomas Mawson, in this country, and of Willy Lange, in Germany. Since the beginning of the present century, and especially since the war, the art of landscape gardening has made tremendous strides, and the date of publication of M. Péan's book finds more than a quarter of the century already elapsed.

In his introduction, the author expresses the hope that his book will interest amateurs, and facilitate the entry of young students into the career of garden-architect. We think it unlikely that the book will wholly fulfil all his kindly aspirations, but we are nevertheless willing to believe that M. Péan's students find him, in personal contact, an enthusiastic and stimulating teacher. We suspect that he is a Parisian through and through; all his photographs are those of Parisian gardens, although had he taken his subjects from other parts of France, he could have found far better and more characteristic examples of modern garden-making. That he has wit and humour we are sure, in spite of the somewhat indigestible nature of the twice-baked dish he has set before us. We can cordially endorse the opinion expressed on p. ix that "*Un petit grain de folie n'est pas à redouter, dans les arts, en général; le tout est de ne pas dépasser les limites*" which can be very freely rendered by "Art in general is none the worse for a little eccentricity, only it must not be overdone."

There is the usual crop of printer's errors, and it is a pity that there is no alphabetical index. These are defects which could easily be put right in a future edition, but we hope that before long we may look, not for a further edition of the present work, but for a completely new book which will give us M. Prosper Péan's own opinions, and provide us with the opportunity of profiting by his own studies and experiences.

Plant Pests and Diseases.[*]

The three volumes on pests and diseases of fruits have now appeared in the series of illustrated booklets published by Paul Parey, of Berlin, of which the first series dealt with Potatos and other root crops. The library of the smaller gardener is not too well supplied with illustrated works on pests and diseases, and to those who can read German easily the three little volumes under review will make a welcome addition to their gardening literature, for they are well got up, the coloured illustrations, of which there is one to every page of text, are beyond all praise, and the letterpress is clear and lucid. It is not, however, possible to pass over the drawbacks inherent in the series, which are not inconsiderable. In our opinion, the arrangement of the books is lacking in clarity, although obviously any system would be open to criticism on one point or another. The method, indeed, varies in the different volumes, which seems to point to a doubt even in the author's mind. Numbers IV and V are arranged according to the parts of the tree attacked, *e.g.*, bud and shoot pests, leaf-eaters, etc. In Number VI the arrangement—to our minds, greatly preferable—is according to the kind of tree, namely, "Diseases of the Strawberry," "Diseases of the Raspberry," and so on. The disadvantage of the former method is that in order to assemble the various diseases from one of which, for example, a sickly Apple tree may be suffering, it is necessary to search all through the volume, for there is no index in any of the three, merely a list of the coloured plates at the beginning. The illustrations, as we have stated, are excellent, but sometimes rather too crowded, doubtless in order to keep the books down to handy dimensions. Some of the statements made require a little qualification—for instance, that silver-leaf is liable to appear on all fruit trees—but on the whole, the books contain reliable information and advice. Numbers IV and V have several pages of advertisements in the end, but number VI appears without this blemish, which, perhaps, accounts for its higher price.

ADDITIONS TO THE LINDLEY LIBRARY.

The following books and pamphlets were added to the Royal Horticultural Society's Lindley Library during the half-year ending June 30, 1929.

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Blatter, Ethelbert. *Beautiful Flowers of Kashmir.* Vol. 2. Col. pls. 8vo. 1928.

Bois, D. *Les plantes alimentaires chez tous les peuples et à travers les âges. Histoire, utilisation, culture.* Vol. 2. Phanérogames fruitières (*Encyc. Biol.*, iii). Illus. 8vo. Paris, 1928.

Bonnier, Gaston. *Flore complète illustrée en couleurs de France, Suisse et Belgique.* Vol. 10, par Robert Douin. Col. pls. 4to. Paris [1929].

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Calvert, Albert F. *Daffodil Growing for Pleasure and Profit.* (Two copies). Illus. 8vo. 1929.

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Cavers, F. *School Certificate Botany* . . 2nd. ed. (9th impr.). Illus. 8vo. 1926.

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Endean, T. M. *Cacti Culture.* Illus. 8vo. Laindon, 1929.

Engler, A., and Drude, O. *Die Vegetation der Erde.* Vol. XIV. Cockayne, L. "The Vegetation of New Zealand." 2nd ed. 1928.

Ewert, Richard. *Blühen und Fruchten der insektenblütigen Garten-und Feldfrüchte unter dem Einflusz der Bienenzucht.* Illus. 8vo. n. p. 1929.

Fischer, Hermann. *Mittelalterliche Pflanzenkunde.* Illus. 8vo. Munich, 1929.

Fritsch, F. E., and Salisbury, E. J. *An Introduction to the Study of Plants.* 3rd. ed. Illus. 8vo. 1928.

Gallet, Théo. *La chrysanthême; trait de culture pratique.* Illus. 8vo. Brussels, 1929.

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Grove, A. *Lilies.* Col. pls. 8vo. [1911].

Hall, Sir A. Daniel. *Fertilisers and Manures.* 3rd. ed. rev. and enl. Illus. 8vo. 1929.

—— *The Book of the Tulip.* Col. pls. Illus. 8vo. 1929.

Hamblin, Stephen F. *American Rock Gardens.* Illus. 8vo. New York, 1929.

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Hawks, Ellison. *Pioneers of Plant Study.* This book was originally planned, and some parts of it written, in collaboration with the late G. S. Boulger. Illus. 8vo. 1928.

Hooper, Cecil H. "The Study of the Order of Flowering and Pollination of fruit blossoms applied to commercial fruit-growing." (*Journ. R. Sce. Arts,* lxxvii.). 8vo. 1929.

Hottes, Alfred Carl. *The Book of Shrubs.* Illus. 8vo. New York, 1928.

Jacquin, N. J. von, Baron. *Enumeratio stirpium plerarumque, quae sponte crescunt in agro Vindobonensi, montibusque confinibus.* Illus. 8vo. Vienna, 1762.

Jekyll, Gertrude. *Home and Garden.* Re-issue. Illus. 8vo. 1926.

—— *Wood and Garden.* 13th impr. Illus. 8vo. 1926.

Jenkins, E. H. *The Hardy Flower Book.* 2nd ed. Illus. 8vo. n.d.

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Kops, Jan. *Flora Batava.* Vols. 10, 11, 12 (Afl. 175-183). Col. pls. 4to. Amsterdam, 1849-65.

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[*] *Parey's Taschenatlanten,* Vol. 4, 5 and 6, *Krankheiten des Kernobstes, Krankheiten des Steinobstes,* and *Krankheiten des Beeren-Schalenobstes.* Von. Prof. Dr. Otto Appel. Berlin, Verlag von Paul Parey. Price Rm. 5., Rm. 5, and Rm. 6, respectively.

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McKelvey, Susan Delano. *The Lilac: a Monograph.* Illus. 4to. New York, 1928.

Martius, K. F. P. von. *Historia naturalis palmarum.* 3 vols. Col. pls. fol. Munich, 1823-50.

Mason, Frances. [Ed.] *Creation by Evolution.* A concensus of present-day knowledge as set forth by leading authorities in non-technical language that all may understand. Illus. 8vo. New York, 1928.

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Robinson, W. *The Wild Garden.* 7th ed. Illus. 8vo. 1929.

Rockwell, F. F. *Gardening Under Glass.* Illus. 8vo. New York, 1928.

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Rosenberg, Miss M. E. *Corona Amaryllidacea.* Col. pls. fol. Bath, 1839.

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GARDEN MANURES FOR NOVEMBER.

Although the supply of potash for the requirements of crops is largely produced in the soil by the natural decomposition of such mineral substances as felspar, hornblende, augite, etc., from which most of our clay soils are derived, and while, generally, potash is fairly abundant in these clay soils, they frequently respond in a remarkable degree to the application of a potassic fertiliser. Chemical analysis, for example, may show abundance of potash in a given soil amounting, perhaps, to several thousand pounds per acre in the first nine inches, and yet it may be impossible to grow a remunerative crop of Peas, Beans or roots on such land without the application of a potassic manure. On light, sandy soils and peats there is frequently a marked deficiency of potash in any form, and applications of potassic manures are essential to maintain fertility. Further, the absorption of potash by some crops takes place at a greater rate than that of the other two important elements, nitrogen and phosphorous, and if this is not restored to maintain the necessary balance, growth is materially affected through malnutrition.

The chief sources of potash are kainit, potash salts, sulphate and muriate of potash, of which kainit contains the least percentage of potash, but it is a valuable potassic fertiliser for autumn and winter application. It is an impure manure and contains a high percentage of salt, hence it is not suitable for all crops, but if applied in autumn or early winter any impurities which might be injurious to plant life will be dissipated before growth becomes active next year. It also contains an appreciable quantity of magnesia which, like potash, is an essential plant food and of especial benefit to root crops.

While sulphate of potash contains fifty per cent. of potash, kainit generally contains only from twelve to fifteen per cent., hence, to give an equivalent amount of potash, it would be necessary to give nearly four times the weight of kainit, but there is very little difference in the relative cost when unit values are compared. The choice is often one of convenience, for under some circumstances of cultivation advantages accrue from being able to apply a slow-acting fertiliser during the dormant season, and this applies particularly to the cultivation of fruits.

It is an interesting fact that, whereas an average grain crop removes considerably more nitrogen and phosphorous than potash from the soil, an average Apple crop removes more potash than nitrogen and phosphorous together. In the light of this fact it may well be asked if sufficient attention is usually given to the supply of potash in permanent fruit plantations. In areas under cultivation the constant moving of the surface soil helps to bring the natural supply in the soil into an available form, but in orchards under grass potash exhaustion is more likely to occur. Where grass orchards are grazed the potash removed by the stock is largely returned in the urine, but where a hay crop is taken further depletion of potash follows, and it becomes imperative to apply a potassic manure to maintain a balance of the elements. It is well-known that unsatisfactory results sometimes ensue from the use of nitrogenous manures, when the supply of potash is deficient, and it has also been noted that the partial failure of some phosphatic manures has been due to lack of a sufficient supply of readily available potash in the soil.

In cases where it is considered that potash is needed, autumn application of fertilisers supplying about 50 lbs. of potash per acre could be given every other year, and this amount could be provided by 4 cwts. per acre of twelve-and-a-half per cent. kainit, or 2½ cwts. per acre of twenty per cent. potash salts.

Cyanamide is a source of nitrogen, and one of the few slow-acting nitrogenous manures available for use during the present season. It is manufactured by a process of fixation of atmospheric nitrogen, which is caused to combine with calcium carbide at a very high temperature. Its action is influenced considerably by the physical condition of the soil, and it is probably due to this factor that it shows less regularity in results than sulphate of ammonia or nitrate of soda. It is best used fresh and if applied to dug or trenched ground which is to remain rough during the winter months, its thorough incorporation with the surface soil is assured when cultivating operations take place in the spring. It contains about nineteen per cent. of nitrogen in the form of calcium cyanamide, and up to sixty per cent of lime, more than half of which is free lime; it is, therefore, valuable as a means of maintaining the lime content of the soil, but should in no case be considered as a substitute for lime. The nitrogen is transformed by a series of changes into compounds that the plant can utilise, and finally ammonia and nitrate are produced by the aid of bacteria. It appears to give better results in the heavier, retentive soils than on the light ones, which may be due, to some extent, to the physical effect of the lime. *W. Auton.*

HOME CORRESPONDENCE.

Imperial Fruit Show.—The Imperial Fruit Show is being held at Birmingham, and from enquiries made, the authorities do not accept subscribers, neither do they sell tickets. Are they progressive? I usually subscribe to these local shows, and purchase tickets to give away to my friends, but in this case I am debarred from so doing, so shall not go. Also many of my friends will not receive tickets, therefore they will not go. I wanted to purchase some fruit trees, so these orders will go elsewhere. *J. A. Restall, Birmingham.*

Berberidopsis corallina.—I was most interested in the article by *L. B. C.* on Berberidopsis corallina in your issue for October 12, p. 284. It may interest your readers to know that we have here what I consider a very fine specimen, being twenty feet high and twelve feet in breadth, on a north wall; it flowers profusely and seems to revel in this position. I understand from one of the oldest employees here that it was planted nearly thirty years ago. *G. W. Hannaford, Carclew Gardens, Perran-ar-Worthal, Cornwall.*

Royal Horticultural Society and its Lecturers.—Judging from the attendance on October 23, the Royal Horticultural Society's Lectures are popular with Fellows. But whether that is so or not, the general arrangements would disgrace even a small local Society. There was no one in authority, indeed, no official or employee of any grade, in the lecture room until the hour to commence (three o'clock) arrived, when the Assistant Secretary came in, apparently to make sure that lecturer and chairman were present, and speedily disappeared. It may be (but this is merely an assumption of vanity) that Mr. Alexander and myself are so well known that we were, so to say, "taken as read." We have no personal complaint, nevertheless, such lack of courtesy is undignified on the part of the Council. Further, not so long ago, a very well known gentleman travelled hundreds of miles to deliver a lecture at the R.H.S. Hall; no one received him, and apparently no one cared a pin so long as he mounted the platform at the proper moment; a friend, finding him wandering around the hall, entertained him to lunch. It is asking very little of the Council to extend some courtesy to its lecturers, and to entertain those who make a long journey to give a lecture they have been invited to deliver. *Charles H. Curtis.*

Gentiana sino-ornata.—So much has been written in favour of Gentiana sino-ornata, which is, perhaps, the best of our late autumn alpine plants of recent introduction, that I refrain from writing much about it. Recently, however, I saw in a contemporary a query as to the cause of its failure in some gardens, and a reply to the effect that G. sino-ornata was subject to a disease. I am in correspondence with a goodly number of growers of this Gentian, both amateur and trade, and I have never heard of any disease affecting it until now. I should be glad to know if any of your readers have seen or heard of this disease, which is stated to be of a fungoid nature. G. sino-ornata is such a precious plant that anything affecting its well-being in our gardens is of more than usual importance. I may add that I have it in several places, and in all it is perfectly healthy and flowering admirably. *S. Arnott.*

Brunsvigia Josephinae.—Having read with much interest the article on the flowering of Brunsvigia Josephinae (*Gard. Chron.*, October 12, p. 282), it may be of interest to record that I received six bulbs of this plant from the Cape in 1926, and although, as your correspondent states of his, the foliage was healthy and strong, no flowers were produced in 1927, but one flowered last year, and five of the six gave very fine spikes this year. Having grown these bulbs before, my own experience is that they must become established, and in the season of rest they should be subjected to a hot, dry atmosphere—of 70° or more—to thoroughly ripen them. When starting them into growth, plenty of water should be given, and a genial atmosphere, with a temperature of from 60° to 65° maintained. I do not recommend stimulants, but give them plenty of room in a mixture of loam, peat and sand in equal parts. *G. W. Hannaford, Carclew Gardens, Perran-ar-Worthal, Cornwall.*

COLONIAL CORRESPONDENCE.

HIBISCUS ESCULENTUS.

I WAS very interested to read the article on The Gombo, by *A. M. W.*, on p. 154 of *The Gardeners' Chronicle*. This vegetable is largely cultivated in Malaya under the native name of Kachang Bendi. It is much appreciated by people of all nationalities, although Europeans consider it to be too mucilaginous; this, however, is not so noticeable if the fruits are cut into slices and fried in the same way as are Capsicums. The plant grows to a height of about six feet, and bears palmate leaves and erect, horn-like pods six to eight inches long. These are harvested while green, before they are ripe. They are usually either boiled whole or cut into slices and used in soups or salads.

In Malaya the plants are grown in the open, in rows three feet apart and two feet in the rows. Two seeds are placed in each hole, and after germination the strongest seedlings are selected and grown on. The first fruits may usually be gathered about ten weeks from seed sowing.

Although not often seen in England the fruits of this Hibiscus are well-known in many widely separated parts of the world. In America it is known as Okra, in Ceylon, Bandakka; while it is known to Europeans in this country as Lady's Fingers which, in my opinion, is not complimentary to the fair sex. The following is an extract from a paper issued by the United States Department of Agriculture on "The Uses of Okras (Kachang Bendi)." "The principal use of Okra is in soups and various culinary preparations in which meats form an important factor, as in the so-called gumbo soups, to which the young pods impart an excellent flavour besides giving a pleasant mucilaginous consistency. The young seeds are occasionally cooked in the same way as green Peas, and the young and tender pods are boiled and served as salad with French dressing. Both the stem and the mature pod contain a fibre which is employed in the manufacture of paper."

No copper, brass, or iron cooking utensil should be used when cooking Okra, as the pods are liable to become poisonous. All the preparations should be made in an earthenware or porcelain vessel. The mucilage is stated to consist of pectin and starch. An oil known in commerce as "Oil of Ben" is obtained from the seeds; it does not become rancid easily, and is, therefore, much esteemed.

ADANSONIA DIGITATA.

THIS remarkable tree, which is known as the Baobab or Monkey Bread Tree, is a member of the Natural Order Malvaceae. This Order includes some important economic plants, such as Cotton and Okra, and ornamental shrubs, including Abutilons and many varieties of of Hibiscus.

A. digitata is a native of tropical Africa, and has been introduced into many other tropical countries. It is reputed to be one of the longest-lived trees in the world. It does not grow to a great height, but the trunk often attains a diameter of thirty feet.

The fruit is a large-shelled, woody capsule borne on a long, pendulous stalk. Each capsule contains a number of cells which are filled with spongy pulp in which the seeds are embedded; this pulp is slightly acid and is often eaten, while the juice expressed from it possesses certain medicinal properties. The fibre from the inner bark is used for making ropes.

The seeds are stated to yield 63·3 per cent. of kernels, which contain 63·20 per cent. of a whitish, solid fat. *F. S. Banfield, F.L.S., Malaya.*

FOREIGN CORRESPONDENCE.

PHYSOSTEGIA VIRGINIANA VAR. VIVID.

WHETHER or not this Physostegia is grown in Great Britain I am unable to state, but it is fast becoming a popular garden plant on this side of the Atlantic. According to the firm of Wayside Gardens, Mentor, Ohio, it is a seedling of P. virginiana which originated in their extensive nurseries. It differs markedly from the parent plant in several important particulars. First, its flowering season is quite three weeks later, as it is at its best during late September and October. Then, it is much dwarfer in growth, never exceeding a height of two feet, yet the inflorescences are very much larger and of a much more attractive colour than in the type plant. The flowers are arranged rather densely in four ranks, in leafless, terminal, simple or panicled spikes. Each flower is one inch or slightly more in length; and half that in diameter across the mouth. They are of a bright rosy-pink hue, with just a slight suggestion of mauve but not sufficient to render the colour objectionable to those who abhor anything approaching magenta and similar tones. The simple spikes are four or five inches in length and resemble, in general appearance, a giant Heather, although naturally differing greatly in botanical details from the Ericaceae.

Physostegia v. var. Vivid is an easy plant to cultivate, revelling in a rich soil and open situation. It is of sturdy habit and, of course, is absolutely hardy. Propagation is readily and rapidly effected by means of division or by cuttings.

It is now listed by many nurserymen in the eastern United States and excites favourable comment whenever it is seen at the flower shows. Every indication is that its popularity will increase, for it is exceedingly useful for furnishing cut bloom late in the season, so well as for supplying colour in the border, while it may be used with good effect in certain positions in the rock garden. Unlike the greater number of the Labiates, the foliage of this plant possesses no noticeable odour, and in my experience it is a clean grower, free from attacks by disease or insect. *T. H. Everett, Pleasantville, New York, U.S.A.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

THE following awards were made by the N.C.S. Floral Committee at its meeting held at the R.H.S. Hall, on Monday, October 21:—

FIRST CLASS CERTIFICATE.

Mrs. W. Hall. II. 1*a.*—A large, exhibition, Japanese variety, with broad florets that incurve slightly at the tips; deep rosy mauve, silvery reverse. Shown by Mr. W. HALL Enton Hall Gardens, Witley.

Dazzle. IV. a.—A distinct and beautiful addition to the list of Pompon varieties. The shapely, crimson flowers are two-and-a-half to three inches in diameter, and borne freely in elegant sprays; we counted twenty blooms on one spray selected at random from many others staged in a large vase.

Mrs. Sarah Knight. II. 1*b.*—A flattish flower of deep reddish rose colour and with pointed florets. A useful decorative variety. These two last were shown by Mr. H. SHOESMITH, junr.

Lustre. I. 1.*a.*—An incurved variety, rather flat for exhibition purposes, but an excellent decorative sort; silvery mauve.

Red Cavell. II. 1.*a.*—A large-flowered sport from Edith Cavell and like it in all but colour; reddish chestnut with old gold reverse. [We believe the correct name of this sport is Mme. Gabrielle Thiaux (see p. 339).—EDS.]

These two last varieties were shown by Messrs. KEITH, LUXFORD AND CO.

Mrs. J. W. Stone. V. 1.*a.*—A very large and beautiful sport from the well-known single variety named Mrs. W. Smith. The flowers are of large size, good form, and fine substance; there are several rows of florets and the colour is clear primrose. Shown by Mr. A. ROBERTSON Abbey Road, St. John's Wood.

COMMENDATION.

Bountiful. II. 1.*c.*—A free-flowering variety, bearing small flowers in large sprays; five feet; deep rose-pink. Shown by Mr. H. SHOESMITH, junr.

SALISBURY GARDENERS'.

UNDER the presidency of the Hon. Louis Greville, the Society held its twenty-third annual meeting at the White Hart Hotel, Salisbury. Mr. Gullick, the Hon. Secretary, presented a most satisfactory Annual Report which reviewed the work of the year. The Treasurer's report showed a balance of 7s. 2d. on the year's working, but a total credit balance to the Society of £54 19s. 4d.

The Hon. Louis Greville was re-elected President; Mr. A. C. Jonas, Vice-President; Mr. S. W. Tucker, Chairman; Mr. P. Baglin, Hon. Treasurer; Mr. F. Gullick and Mr. C. J. Phelps, Hon. Secretaries; and Mr. A. Hammond, Librarian.

At the conclusion of the business, the Chairman presented Mr. Baglin, Mr. Gullick, Mr. Phelps and Mr. Tucker with gifts subscribed for by the members of the Society in recognition of their having each given twenty-one years' faithful service to the Society in their respective positions of Hon. Treasurer, Joint Secretaries and Chairman. Mr. Baglin was given a suitable inscribed set of bowling "woods." Mr. Gullick was asked to accept an Oak roll-top desk, also suitably inscribed. Mr. Phelps, a china tea service; and Mr. Tucker an inscribed silver cigarette case.

The Vice-President explained that these gentlemen had so long and faithfully served the Society in their respective capacities that the members felt the time had arrived when they should show their appreciation in some tangible way, and that occasion had been chosen for the presentations. He was only voicing the members' feelings when he said that he hoped they would appreciate the gifts, not for their intrinsic value, but as a token of the members' high esteem for the services they had rendered. He hoped they would live many years to enjoy the gifts.

After suitable acknowledgments from the recipients, a pleasant meeting closed with a vote of thanks to the Chairman.

CARDIFF GARDENERS'.

At the fortnightly meeting held at the Queen's Hotel, Cardiff, on October 15, Mr. W. H. Pryce presided. There was a large gathering of gardeners, and a number of ladies were present especially invited to hear a lecture on Dahlias, which was given by Mr. F. Treseder of the Cardiff Nurseries.

Commencing with the old Dahlia coccinea which came from Mexico, and of which he had a specimen on view, Mr. Treseder dealt with the history of the Dahlia, and referred to the several species. Later, he dealt chiefly with the Miniature Decorative varieties, better known as Charm Dahlias, and the dwarf Mignons, which are so useful for bedding purposes. Many of these he had in bloom, besides several excellent seedlings not as yet in the market. Mr. Treseder gave admirably full details regarding propagation, cultivation and the entire management of plants in all stages; he also discussed enemies and diseases.

Some splendid vases of cut flowers were staged, also fruits and Begonias, all of which were awarded prizes and points. A superb large vase of Dahlias was staged by the Chairman and this was the centre of admiration

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

Mr. Charles H. Curtis presided at the monthly meeting of this Society, held in the R.H.S. Hall, on Monday, October 14. Nine new members were elected. Four members withdrew a total of £148 2s. 10d. from their deposit accounts, and the sum of £30 12s. 3d. was paid to the nominee of one deceased member. The sick pay on the Ordinary side amounted to £70 10s. 5d., and on the State side to £76 8s. 7d., while maternity benefits amounted to £7.

The Trustees were empowered to invest a further £1,000. Grants amounting to £26 17s. 9d. were made to eight members for dental and optical treatment, and several other cases were considered.

THE IMPERIAL FRUIT SHOW.

The unusually gloomy interior of the Bingley Hall, Birmingham, presented a bright and animated appearance when the Ninth Imperial Fruit Show opened on October 25. The promoters of the exhibition are to be congratulated on the arrangements, and from the point of view of effectiveness the show was vastly superior to the one that was held some years ago in the same building.

As a spectacular display of home and empire grown fruits, so well as fruits products, the show was a great and successful effort; it also had many educational features of interest to fruit-growers, and the space in the hall was occupied in such a way that while there was no overcrowding, everything could be seen with ease and comfort. The boarding of the floor was a great improvement on the tan which covered it on the occasion of the last Birmingham Show, and it is doubtful whether any previous exhibition in the Bingley Hall has been set out in such a tasteful manner.

The purely competitive part of the show, however, seemed very small in comparison with other features, so small, in fact, as to appear insignificant to visitors after an inspection of the elaborate display made at considerable trouble and no small expense by the Empire Marketing Board.

While the spectacular side of the Imperial Fruit Show has developed and improved to a marked extent, as a competitive exhibition of British-grown fruits it will hardly bear comparison in extent with those held when, and for a few years after, the series was commenced.

The chief feature was the big classes of fifty standard boxes of culinary Apples, and a similar number of half-boxes of dessert Apples, open to British growers, with similar classes open to growers in the overseas Dominions. These classes, in which liberal prizes were offered, resulted in keen competition among commercial fruit-growers whose names have become familiar as regular prize-winners at Imperial Fruit Shows, and had it not been for these big classes the competitive display would have been very small indeed. Among the most successful exhibitors were Messrs. F. and M. Dixon, Tardebigge, Worcester, and other familiar names appearing on the prize cards in various classes were those of the Hollesden Bay Labour Colony, Paget Norbury; Messrs. Seabrook and Son, The Overbury Orchards Co., Mount, and the Reading University, the last-named having the honour of winning, with splendid boxes of Worcester Pearmain, the Murphy Cup for the finest lot of Apples in the show. The awards were made, as usual, by a panel of judges on a score-card system, certain points being given for the fruits and others for packing. The score-cards were afterwards displayed on the exhibits so that competitors could tell where they lost or gained, but the weak point in the method was displayed by the number of equal prizes awarded which could, and should, have been avoided.

The Apples shown in bushels and barrels, which used to be a big feature at Imperial Fruit Shows, occupied a comparatively small space in one of the galleries, and the prize-winners were in many cases the same as in the box classes. As a whole, the quality of the fruits was extremely good, particularly among the Cox's Orange Pippins, and the packing showed that our leading commercial growers have little now to learn from overseas competitors whose methods they have copied.

In addition to the truly wonderful display made under the auspices of the Empire Marketing Board, in which there were fresh and preserved fruits from all parts of the Empire, there were the usual demonstrations in grading and packing Apples, and the Research Stations at Long Ashton and East Malling combined forces in setting up an exhibit of a highly educational character.

The distributing and retail fruit traders were well represented by very tastefully arranged stands, and several nursery firms set up exhibits of fruits and young trees. The exhibition was opened officially by H.R.H. Prince George, but the time of the ceremony was altered at short notice for unavoidable reasons, and took place at midday on the 25th instead of in the afternoon, as announced on the invitation cards sent out.

NORTH OF ENGLAND HORTICULTURAL.

The Autumn Show, held by this Society at Harrogate a short time ago, was in every way a great success.

The awards to non-competitive exhibits were as follows :—

Large Gold Medals.—To Messrs. Dickson and Robinson, for Dahlias (also the Harrogate Corporation Cup); Messrs. Thomas Robinson, for Roses (also the Whitehead Cup); and the the Harrogate Corporation, for decorative plants.

Gold Medals.—To Messrs. Dobbie and Co., for Dahlias; Messrs. G. Gibson and Co., for a group of plants (also the Ashworth Cup); Messrs. Mansell and Hatcher, for Orchids (also the Ogden Cup); Messrs. S. McGredy and Son, for Roses; Messrs. Pennell and Sons, for a collection of fruits; Messrs. Kent and Brydon, Ltd., for a collection of vegetables; Messrs. C. Gregory, for Roses.

Large Silver-gilt Medals.—To Messrs. Backhouse Nurseries, Ltd., for a table rock garden; Messrs. Daniel Bros., Ltd., for fruits and Montbretias; and Messrs. W. and J. Brown, for Roses.

Silver-gilt Medals.—To Messrs. Bakers, Ltd., for herbaceous flowers; Messrs. Whitaker and Wilson, Collingham Bridge, for Gladioli; Messrs. Allwood Bros., for Carnations; and Messrs. F. E. Green, for examples of topiary work.

Large Silver Medals.—To Mr. W. Wells, junr., for Asters; Messrs. Harkness and Sons, for herbaceous flowers; Messrs. Hewitts, Ltd., for Delphiniums; and Messrs. R. V. Roger, for Roses and Apples.

Silver Medals.—To Mr. J. C. Schneider, Boston Spa, for rock plants; Mr. H. Dyson Walker, for Dahlias; The Bulb Farm, Wetherby, for Gladioli; Messrs. Kent and Brydon and Haigh, Ltd., for Asters; the Rev. C. Gallacher, Harrogate, for Begonias and Gloxinias; Messrs. W. H. Simpson and Sons, for Asters; Messrs. H. H. Maw and Son, for miscellaneous flowers; Mr. W. Kershaw, Saltaire, for herbaceous flowers; Mr. A. W. Whitelock, Harrogate, for Chrysanthemums; Messrs. C. H. Bloom and Sons, for a rock garden, etc.; Messrs. P. Gardner, for a table rockery; and Messrs. Wheatcroft Bros., for Roses.

Bronze Medals.—To Mr. J. E. Dalgleish, for Roses; and Messrs. Greenwood and Co., for hardy plants and fruits.

ROYAL HORTICULTURAL.

FOURTH AUTUMN SHOW.

(*Concluded from p.* 334.)

A wholly admirable group of stove and greenhouse plants was arranged by Messrs. L. R. Russell, Ltd., at the far end of the hall. Not only was there a large and varied collection of splendidly-grown plants, but their disposal was especially successful. Many particularly well-coloured Codiaeums (Crotons) and tropical Cordylines (Dracaenas) provided rich colouring, while at the back there were graceful Palms and tall specimens of broad-leaved, red-marked Acalypha Macafeeana, while many Pitcher Plants (Nepenthes) placed on pedestals along the foreground added to the value and attractions of the exhibit. The principal Nepenthes were N. Rafflesiana, N. Hookeriana, N. Henryana and N. Mastersiana purpurea. In addition, there were some very beautiful varieties of Begonia Rex, foliage Anthuriums and Allamandas. At either end of these gorgeous and fascinating tropical plants there were valuable and instructive groups of tropical and sub-tropical plants of economic value. These included luxuriant specimens of several species of Banana, of value either for their fruits and fibres, and well-grown plants which supply such necessities and luxuries as Pineapples, Coffee, Cocoa, Tea, Ginger, Pepper, Cinnamon, Cochineal, Vanilla, Cocaine, Teak Wood and Croton Oil.

A showy and effective group of greenhouse plants exhibited by the Duke of Wellington (gr. Mr. H. J. Beckingham), Ewhurst Park, Basingstoke, was composed of excellently-grown plants of Coleus Sunset and Celosia plumosa varieties, with many cut flowers of Nerine Bowdeni and Sternbergia lutea. Messrs. Blackmore and Langdon staged large, round baskets filled with plants of greenhouse Cyclamen and floriferous little Begonias of the semperflorens type, while Messrs. Wed. P. Eveleens and Zonen also showed plants of Cyclamen persicum varieties.

The several exhibits of Chrysanthemums were very attractive, and the quality of the blooms of the various types augured well for the success of the forthcoming show of the National Chrysanthemum Society in the same building. The large Japanese varieties were well shown by the King's Acre Nurseries, who had particularly good blooms of W. Renshaw, Daily Sketch, Mr. D. Slack, Mauretania, Mrs. R. C. Pulling and Edith Cavell.

An exceedingly attractive and well-arranged group of varieties especially valued for market sale was made by Mr. A. G. Vinten. The varieties Miss Eva Hudd, Mrs. Phil Page and Jean Pattison provided rich bright colour, while

Salmon Queen, Golden Wonder and Autumn Gold were also very attractive. Messrs. Keith Luxford and Co. showed many good decorative varieties, including Cranford Pink, Elsie Heady, J. Bannister and Pink Delight, and also had fine blooms of Mrs. W. J. Stone and several good Singles.

Late autumn Roses of considerable beauty were shown by Messrs. B. R. Cant and Sons, Messrs. Alex. Dickson and Sons, Messrs. Wheatcroft Bros., and Mr. George Prince. Their customary displays of excellent greenhouse Carnations were set up tastefully by Messrs. C. Engelmann, Ltd., Messrs. Allwood Bros., and Messrs. Stuart Low and Co. Sweet Violets were staged by Mr. G. Zambra and by Mr. J. J. Kettle, who also showed fruiting branches of autumn Raspberries.

Bunches of brilliant trusses of Zonal Pelargoniums in considerable variety were well set up by Mr. R. J. Case. His single varieties included Cheerful, deep rosy-cerise; Exquisite, rosy-pink; F. W. Penny, glowing scarlet; Janet Scott, deep rich orange; Mars, dark crimson; Patrick, cerise shaded with purple; and Staplegrove Beauty, deep rosy-salmon. Nearby, Mr. H. A. Brown had plants of such Fuchsias as fulgens, Coraline, parviflora and Thalia.

An interesting collection of well-grown Succulent plants was set out by Mr. T. M. Endean. He had large specimens of Pilocereus senilis, Echinocactus Wislizenii, E. Grusonii, E. recurvus and Mammillaria gigantea, with smaller plants of a great variety of these fascinating plants.

A large and effective group of Statice profusa superba and white Chrysanthemums and white Carnations was arranged by the Rolvenden Nurseries

Dahlias were staged in exceptionally fine quality by Mr. J. B. Riding, whose large exhibit would have been noteworthy even in the height of the season. Glowing colour was provided by the large stands of Titan, Brightness, Dazzle, Norah Bell, El Granada and other valuable sorts, while the Cactus varieties were well represented by Golden Sun, Golden Queen and E. Siebling. Messrs. Wm. Treseder, Ltd., also had a good collection and their chief sorts were Bishop of Llandaff, Dr. H. Spath, Pride of San Francisco, Vida and a good collection of Pompons. Messrs. J. Cheal and Sons set out Star Dahlias and the decorative miniature Paeony-flowered varieties with their collection of shrubs.

Hardy shrubs, more especially the species and varieties which bear luxuriant crops of ornamental fruits, were one of the chief features of the show. They occupied considerable space and most of the exhibits were exceedingly beautiful.

In the body of the hall a delightful group of very many ornamental shrubs was exhibited by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Hants. Along the centre, there were tall, graceful branches of Pyracantha Rogersiana flava, Hippophae rhamnoides, and Stranvaesia salicifolia arching over vases of Cydonia Maulei var. rosea, studded with yellow fruits, Lonicera Maackii, many species and hybrids of Berberis and a great variety of Pernettya mucronata, Crataegus Canbyi showing autumn colour both in its foliage and fruits, Berberis virescens carrying purple leaves and berries, Cotoneaster frigida var. fructu luteo and a bright and graceful hybrid of Cotoneaster Watererii were also very attractive.

On a large wall space the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, set out an enormous collection of branches of ornamental trees and shrubs from his famous garden. The large, yellow, Quince-like fruits of Cydonia japonica var. Wilsonii attracted a deal of attention. Among the many other valuable shrubs were Viburnum Opulus var. xanthocarpa bearing many pendulous bunches of shining yellow fruits; seedling Berberises with rich golden and orange-red leaves; Pyrus pinnatifida var. Gibbsii, with ample bunches of large, scarlet fruits; Spiraea media, with delicate rosy-purple foliage; Rhus typhina, with leaves of fiery scarlet colour; and Taxus cuspidata var. fructu luteo showing shining yellow fruits. There was also a tall bush of Pyrus Malus var. aldenhamensis in full flower. The normal late autumn-flowering shrubs were represented by bushy plants of various Heaths, and vases of Ceanothus Arnoldii, Ceanothus Féndlerii, Buddleias, Ligustrums, Fuchsia Thompsonii, Caryopteris Mastacanthus, Ulex europeaus var. strictus and several varieties of the hardy Hybiscus, Althaea frutex.

The Countess of Cawdor (gr. Mr. H. Windebank), Frensham Hall, Haslemere, had a neat collection of varieties of Pernettya mucronata, Cladastris scandens and Berberis asiaticus in fruit; while from Wisley were sent three Berberis seedlings, one of which bore many pendulous bunches of berries on long stems much like little bunches of oval, orange-scarlet Grapes.

Vivid autumn colour was shown on branches of Pyrus discolor, Berberis Thunbergii, Acer Ginnala and Ribes americanus in the exhibit of Messrs. J. Cheal and Sons, who also showed heavily fruited branches of the Snow Berry and Pernettya mucronata, with flowering sprays of various shrubby Veronicas. A colourful exhibit was also staged by Messrs. G. and A. Clark, who included many useful shrubs. Messrs. E. F. Fairbairn and Sons set up a good collection of late trusses of herbaceous Phloxes.

In an interesting and graceful exhibit, Mr Amos Perry showed Nerine Bowdeni and the superior variety major, Lavandula pectinatus, Lilium nepalense and a quantity of Anthemis tinctoria, Perry's variety.

SOCIÉTÉ BELGE DES CHRYSANTHÉMISTES.

The second exhibition of this Society was held in the Palais du Midi, Brussels, on October 26, 27 and 28. A good show was provided, and those competent to judge considered it to be a great improvement upon the initial exhibition of 1928.

The Juré consisted of Mr. Charles H. Curtis, President; Mr. H. de Lange (Holland), Secretary; M. Etienne Jouris, M. E. Nagels and M. Sils, with M. J. Simon as conductor.

As the exhibits in any one class were seldom arranged together, or even near each other, but disposed in the exhibition hall so as to secure the best general effect, it will be readily understood that judging occupied a considerable time and necessitated a great deal of walking about. It was, therefore, fortunate that in several of the fifty classes provided there was but one exhibitor. But to the ordinary duty of deciding which of certain exhibits are first, second or third, in order of merit, another is added at many continental shows—as on this occasion—where the prizes are supposed to be medals. This additional duty is that of determining the value of the "medal" awarded (where such value is not stated), and this is done in accordance with the merit of the exhibit. Thus a medal valued at 200 francs may be awarded, yet in another class, of similar extent, the award of a medal of the value of 150 francs, or possibly only 100 francs, may meet the case. Where the prizes are definitely set forth and valued in the schedule, all is straightforward once the exhibits are rounded up, but when it comes to appraising the exhibit and making the award accordingly, the business is often strongly suggestive of making "the punishment fit the crime."

However, all was finished in time for the Secretary, M. Roekens, to get all the prize cards in position, and for the judges to enjoy a *petit dejeuner* before the Japanese Ambassador to Brussels, M. Nagai, came to give the exhibition his blessing. His Excellency was keenly interested in the principal exhibits which were pointed out to him by M. Bols, the President; M. Moonens, Vice-President; M. Corbeel, Treasurer; and M. F. Roekens, the hard-working Secretary. His Excellency also chatted for some time with Mr. Curtis, who discussed several British-raised varieties with him, including the golden Viscount Chinda, named after the late Ambassador to London.

Conifers, Bay Trees and Palms were used as a background for large groupings at each end of the hall, and at one end a big Japanese gateway broke up the Conifer plantation, which was bordered with early-flowering Chrysanthemums in pots, while in the lawn in front, stepping stones led up to the gate itself.

The centre of the hall was set out to represent a rectangular pool of water, with an edging of small, white and purple Chrysanthemums and Ferns, within the curb, and three huge garden vases of large Chrysanthemum blooms—one of fifty flowers of Queen Mary—down the centre of the "water."

In the principal class, of national importance, the schedule required a dozen vases of flowers, five blooms of one variety in each vase. The first prize was the Society's Challenge Cup and Gold Medal. This handsome award was won by M. Odon Warland, a keen and wealthy amateur horticulturist, who resides at Uccle. We congratulate M. Warland and his gardener M. Baeck, upon their success in this and in many other classes, as they showed fine flowers of Majestic, Red Majestic, Queen Mary, Lady Findlay, Rose Day, Mr. T. Attwood, Mrs. Harold Wells, Paul l'Abbé, Viscount Chinda, R. C. Pulling and Mona Davis. The second prize was won by M. H. Van Loo, Chef de Service des Plantations de la Commune de Schaarbeek—a place just outside Brussels. In size and colour many of the flowers shown by M. O. Warland, would compare favourably with those shown in the principal British competitions, nevertheless, there is a great deal of levelling up to be done ere the British standard is reached.

An international character attaches to this exhibition inasmuch as one class for a dozen vases of flowers, five flowers of one variety in each vase, is open to all countries, and M. O. Warland has provided a large and handsome Challenge Cup as an attractive first prize, while the Society adds a Gold Medal. The Cup was won by Baron de Mevius (gr. M. Mertens), Chateau de Arthey, Rhisnes; the best varieties in this collection were Queen Mary, Viscount Chinda, Arnold Wells, P. Rivoire, R. C. Pulling, Majestic, Undaunted and Paul l'Abbé. Several members of the Society proposed to visit the National Chrysanthemum Society's show in 1930, to "spy out the land," and return with a determination to raise the Belgian standard of exhibition flowers to that of the British, in the hope that Belgium, Britain, and possibly France, may compete in this international class in 1931, but Mr. Curtis told them that very probably he might obtain enough first-class flowers to enable Britain to make a good fight for the Cup in 1930.

The principal prize-winners, other than those already mentioned, included M. Jean Espagne, M. Marin, M. Deschamps, M. Charlier, M. Van Loo, M. Nagels and M. Weyenberg.

The great majority of the large flowers were, however, British sorts, and it was interesting to find Mona Davis, Jas. Gibson, R. C. Pulling, Queen Mary, Majestic and Red Majestic exhibited so freely. Pillars of Almirante created fine splashes of colour, as did several huge vases, each containing fifty blooms, of R. C. Pulling, Viscount Chinda and Mr. T. Attwood. This last-named variety was particularly well-shown by M. Odon Warland, who had a ground group of fifty very fine examples of this soft pink and elegant variety.

Floral art was a distinct and beautiful feature in this show, and the several groups of bold designs contributed by members of the Union Professionelle des Fleuristes de Belgique, contained many very fine examples of the use of big Japanese blooms in the decoration of large tables, hall corners, huge specimen vases, baskets, etc. Similar contributions from a few of the leading London florists would prove a great attraction at a London show.

Dwarf pot plants were shown well and extensively, most of the exhibitors in this section showing the popular white Blanche de Poitevine; some of the plants, about fifteen inches tall, carried from ten to twenty flowers, but those carrying the smaller number produced the finest flowers. About eight such groups were arranged on the floor in different parts of the hall, and as each group contained fifty plants, the whole series filled a considerable space. One small-flowered variety that appeared fairly popular is named Purpurine, and it is well named, but the colour is not a shade that would find much favour in Britain. We understand, however, that it is grown somewhat extensively in view of the immense demand for flowers to be placed on graves on November 1—All Saints' Day.

Novelties were neither numerous nor particularly good, and only one was selected by the judges for consideration. This was named Lutéce, and it was awarded 30 out of 35 points for colour (soft rose-pink, paler in the centre) 15 out of 20 for "grandeur," 15 out of 15 for form, 7 out of 10 for doubleness, and 15 out of 20 for foliage; total, 82 out of a possible 100 points. It received a Certificate of the second class, as 90 points or over are needed to receive a First Class Certificate.

BRITISH CARNATION.

The following new Perpetual-flowering Carnations have been registered with this Society:—

Gladys.—Seedling, salmon-rose, fragrance fair, habit and stem good. Madge.—Seedling, orange, flaked bright pink, slight scent, habit and stem good, but rather slow grower. Nina.—Seedling, heliotrope (Mikado colour), fragrance fair, good stem and very free habit of growth, Registered by Messrs. C. Engelmann, Ltd., Saffron Walden.

Isobel Hamilton.—Seedling, rich, light pink slightly scented, stiff stem, free habit of growth Registered by Messrs. Walter Hemus, Ltd., Hanworth, Middlesex.

Sonny Boy.—Seedling, cerise, habit and stem extra good. Nada.—Seedling, salmon-pink, habit and stem good. Registered by Messrs. A. F. Dutton, Ltd., The Nurseries, Iver, Buckinghamshire.

Joan.—Seedling, yellow, habit and stem good, parentage from Maine Sunshine. Registered by Messrs. H. T. Mason, Ltd., Hampton Heath.

Lushill Scarlet.—Seedling, scarlet nearest colour, *i.e.* Brilliant or Aviator; exceptionally robust in habit, flowers strongly fragrant. Registered by Mr. Cecil Smith, The Gardens, Lushill, Highworth.

R. A. Nicholson.—Seedling, scarlet, near in colour to Spectrum. Ann Horton.—Seedling, white, pencilled carmine. Registered by Messrs. Stuart Low and Co., Bush Hill Park, Enfield.

READING GARDENERS'.

There was a very large attendance of members at the fortnightly meeting held in the Abbey Hall, on Monday evening, October 21, and presided over by the President, Mr. Frank E. Moring. Splendid specimens of Onions, Carrots and Celery were staged for competition, and a fine collection of Apples and Pears was exhibited in the non-competitive section. The competitions arranged for the evening and the results were as follows:—For six Onions (eight entries), first, Mr. W. Turnham, Greenlands Gardens, Henley-on-Thames; second, Mr. H. Tuffin, Iris Court Gardens, Pangbourne, and third, Mr. A. W. Gower, Calcot Grange Gardens, Reading. Six Carrots (eight entries), first, Mr. W. Turnham; second, Mr. A. Manley, Highfield Gardens, Heckfield; and third, Mr. H. Tuffin. Three Celery (five entries), first, Mr. E. Blackwell, Foxhill Gardens, Reading; second, Mr. A. W. Gower; and third, Mr. W. Turnham.

In the non-competitive section, Mr. A. Manley received a First Class Certificate for a collection of Apples and Pears, and also an Award of Merit for three well-grown Chrysanthemums. Roses and Marigolds were shown by Mr. F. G. Rabbetts, Bulmersche Court Gardens, Earley, and an interesting exhibit of Savoys by Mr. E. A. Beaumont, The Lodge, Copse Hall, Earley, consisting of a specimen lifted from the ordinary soil which was infested with club-root, and another which had been planted in cinders, and which was free from this devastating disease.

The Lecturer was Mr. H. H. Cook, Reading University Horticultural Department, and his subject was "The Forcing of Salads and early Vegetables." In his opening remarks he said that in his opinion there was no other subject that required more skill, care and forethought as the forcing of salads and vegetables. Mr. Cook went on to state that his subject was such a broad one that he could only briefly touch upon the many subjects that were suitable for the purpose. Cultural instructions were given for forcing Rhubarb, Seakale, Asparagus, dwarf Beans, Marrows, Potatos, Turnips, Carrots, Tomatos, Cucumbers, Lettuces, Endive, Chicory, Radishes, Mint and Parsley, and also the best places and positions in which they should be forced—in the Mushroom-house, greenhouse, frames, etc.

An excellent discussion followed, at the close of which a very sincere vote of thanks was tendered to Mr. Cook for a lecture that contained so much practical and valuable information.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

At a largely attended meeting of the members of the above Society, presided over by Mr. Isaac Fleming, Director of Parks, Paisley, Mr. William McCarrell, Deanston House Gardens, delivered a lecture on "Insect and Fungus Pests of the Garden." He discussed in detail the enemies of greenhouse subjects, such as mealy bug on vines; a trouble which caused Grapes to turn black, wither and show white spots on the leaves; mildew, shanking and red spider; shot-hole fungus on Peach trees; rust, white fly and black spot on Tomatos. Perpetual Carnations, he observed, gave him more trouble than any other occupant of the cool greenhouse. For more than twenty years he had always red spider on the plants and rust more or less. The presence of the fungus known as Fairy Ring was mainly due to the improper use of the watering can and doubtful environment, while rust on Cyclamen and Begonias of the Gloire de Lorraine type had its origin in over-heating and dry surroundings. The formidable host of troubles affecting Roses next claimed attention, and subsequently he dealt with the common pests of Brassicas; Carrot and Onion flies, Celery rust, blight and scab of Potatos, and the diseases and pests of fruit trees and bushes in general.

A protracted discussion followed, and at the close, Mr. McCarrell was accorded a hearty vote of thanks.

Obituary.

Mr. David Ewing.—His many old friends, scattered over a wide radius, will learn with regret of the death of Mr. David Ewing, who for over half-a-century was head forester on the Strichen Estates, Aberdeenshire. Blessed with an exceptionally healthy life, the end came very suddenly, at his residence, The Lodge, Strichen House. Fifty-five years ago, Mr. Ewing was appointed to the post which he continued to hold to the utmost satisfaction of his employers until a year or two ago, when the Strichen Estates, like so many more in the land, were broken up, and he went into retirement. He was known and highly esteemed around Strichen House and district by two generations, and the funeral at Strichen Churchyard was very largely attended. Mr. Ewing took no part in public affairs, but devoted himself whole-heartedly to his duties, and his fine record of service indicates how well and faithfully these were carried out. In June last he and Mrs. Ewing celebrated very quietly their golden wedding. He is survived by Mrs. Ewing, two sons and four daughters. The sons occupy highly responsible positions in London and India, and the daughters are all married.

ANSWERS TO CORRESPONDENTS.

Begonias Unhealthy.—*G. P.*—The Begonia leaves show no sign of having been attacked by any fungus disease, the only fungus obtained in culture being a saprophytic species. It would be advisable to refrain from overhead watering and to aim at keeping the house less humid than heretofore. The matter is a cultural rather than a pathogenic one.

Carrots Decaying in Store.—*E. C.* There would appear to be something in the ashes which is detrimental to the Carrots. We suggest you clean the roots well and then store them in sand.

Codiaeum Leaves infested with Scale. *W. G. B.* Your Codiaeums (Crotons) are badly infested with freshly emerged nymphs of the brown scale, Lecanium hesperidum. Both surfaces of the leaves should be sponged with a one per cent. solution of Volck. The cause of the dying back and brown spotting of the foliage is due to some error in cultivation, such as the amount of water received at the roots, and overhead syringing during the cooler and cloudier weather recently experienced. Careful attention must be given to the water requirements of these plants in order to preserve a correct balance between roots and leaves.

Chrysanthemum Leaf Eelworm.—*G. E. W.* The foliage of your Chrysanthemums is heavily infected with the Chrysanthemum leaf eelworm, Aphelenchus ritzembosi. Destroy all plants which show the symptoms of attack, which are brown areas in the younger leaves and dried up foliage at the base of the plant. The soil in which the plants are growing must be steam-sterilised in order to destroy the eelworms therein. An article on this pest appeared in *The Gardeners' Chronicle* of June 11, 1927, p. 415.

Names of Fruits.—*E. T.* Beurré Hardy.

Names of Plants.—*H. E.* 1, Eccremocarpus scaber; 2, send when in flower; 3, Hoya species, send in flower; 4, Mesembryanthemum crystallinum var. variegatum; 5, Nidularium fulgens.—*A. J. D.* 1, Centaurea Cineraria; 2, Cineraria maritima.—*J. L. W.* Ceratostigma plumbaginiodes.—*C. B.* 1, probably Saxifraga ligulata; 2, Phlox subulata variety; 3, probably Sedum multiceps; 4, Hieracium aurantiacum; 5, Sedum spathulifolium.—*H. L.* 1, Pyracantha Rogersiana; 2, Polygonum Baldschuanicum; 3, Senecio Veitchianum; 4, Hypericum patulum var.; 5, Viburnum Tinus; 6, Polygonum amplexicaule; 7, Statice latifolia; 8, Senecio Greyii.—*G. W. L.* Zauschneria californica.

Peach and Vine Roots Unhealthy.—*J. R.* While some of the roots of the Peach and vine are very unhealthy and covered with the mycelium of a saprophytic fungus, others are dead. It would appear that the trouble arises from poorly drained borders in which the soil is sour. The borders should be entirely renovated during the coming winter. Examine and rectify any defects in the drainage system of the house and refill the borders with a compost consisting of fresh turfy loam, mortar rubble, charcoal, wood-ash and half-inch bones. The sole addition of lime is an inadequate measure.

Seeds of Sagina procumbens.—*L. H.* We suggest you apply to Messrs. Thompson and Morgan, Ipswich.

Vines Unhealthy.—*H. N.* There is no sign of disease on the laterals and foliage of the Muscat vines. Scorch is undoubtedly the trouble and this is usually due to lack of shade. The complete renovation of the border with adequate drainage and early shading of the vines in early spring, should result in the elimination of the trouble.

Communications Received.—G.—R. W. R.—G. M. H. T.—L. K.—M. E.—N. R.—H. M. W.—W. G. W.—W. F. S.—J. B.—H. H. M.—E. H.

MARKETS.

COVENT GARDEN, Tuesday, October 29, 1929.

WE cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.... ...	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	30 0–36 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	18 0–24 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0

	s. d. s. d.
Erica gracilis, per doz. ...	24 0–30 0
—nivalis, per doz.... ...	24 0–30 0
—the above in 60's, per doz.	10 0–12 0
—the above in thumbs, per doz. ...	6 0—8 0
Marguerites, white, per doz.... ...	18 0–24 0
Nephrolepis, in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's per tray of 15 ...	2 6—3 0
Solanums, per doz. ...	15 0–18 0
—60's, per doz.	9 0–10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Acacia (Mimosa), per bun. ...	1 0—1 6
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	7 0—8 0
Arums (Richardias), per doz. blooms	8 0–10 0
Asparagus, plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „ ...	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 3—1 6
—short „ ...	0 6—0 9
Camellias, white, per doz. ...	3 0—3 6
Carnations, per doz. blooms...	2 6—5 0
Chrysanthemums, bronze, per doz. blooms...	2 0—6 0
—white, per doz. blooms ...	2 6—6 0
—yellow, per doz. blooms...	2 6—5 0
—pink, per doz. blooms ...	2 6—5 0
—bronze, sprays, per doz. bun.	9 0–18 0
—white, sprays, per doz. bun.	9 0–18 0
—yellow, sprays, per doz. bun.	10 0–15 0
—pink, sprays, per doz. bun.	9 0–15 0
—large specimen blooms, per doz.	9 0–12 0
—single, disbudded, per doz. blooms	4 0—6 0
— —spray, per doz. bun. ...	12 0–18 0
Cornflowers, blue, per doz. bun.	3 0—3 6
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0

	s. d. s. d.
Foliage—	
Ampelopsis leaves, per doz. bun....	3 0—5 0
Hardy foliage, in variety, per doz. bun.	4 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Heather, white, per doz. bun.	— 12 0
Lilium longiflorum, long, per bun. ...	— 6 0
—auratum, per doz. blooms .	5 0—6 0
Lily-of-the-Valley, per doz. bun.	18 0–27 0
Marigolds, per doz. bun. ...	2 6—3 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas	30 0–42 0
—Cypripediums	9 0–18 0
Physalis, per doz. bun. ...	12 0–18 0
Roses, per doz. blooms—	
—Columbia ...	2 6—3 6
—Richmond ...	2 6—4 0
—Yellow ...	2 0—4 0
—Molly Crawford	1 6—2 6
—Mad. Butterfly	2 0—4 0
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	6 0—8 0
Stocks, double white, per doz. bun.... ...	4 0—6 0
Violets, single, per doz. bun.	2 0—4 0
—Parma, per bun.... ...	2 6—3 6

REMARKS.—General requirements have shown a slight improvement during the past week, but with the exception of Lilium longiflorum and Arums (Richardias) prices have shown little change. The former reached the highest price for some considerable time, but this morning prices were a trifle easier. Among Chrysanthemums, Jean Patterson is the latest arrival in bronze blooms; white incurved blooms are now on sale, and the single varieties are becoming more popular. The disbudded blooms in pink, yellow, red and bronze are exceptionally fine in quality, especially of such varieties as Mary Edwards, Mrs. Edwards and Donald Edwards, also single Anemones and Violets from Cornwall and Devonshire are now arriving in excellent condition, and also small consignments of Forget-me-Nots and Marigolds. Some scarlet and pink Nerines from Guernsey are very fine.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—King of the Pippins, per ½-sieve ...	3 0—5 0
—Allington, per ½-sieve ...	3 0—4 6
—Cox's Orange Pippin, tray	4 0—6 0
—½-bushel case	6 0–12 6
—Worcester Pearmain, per bushel case...	10 0–14 0
—Bramley's ...	4 0—8 0
—Lord Derby...	3 0—6 0
—Lane's Prince Albert, per bushel ...	4 0—8 0
—Newton ...	4 0—8 0
—Bismarck ...	4 0—7 0
—Charles Ross, per tray ...	3 6—4 6
—Rival, per tray	3 0—4 0
—per ½-tray ...	3 0—4 0
—Warner's King, per bushel ...	4 0—7 6
Apples—	
—Nova Scotian, Cox's Orange Pippin, ½-barrel	20 0–30 0
Bananas, per bun.... ...	11 0–19 0
Grapes, English—	
—Alicante ...	1 0—2 6
—Gros Colmar	1 6—3 0
—Muscat of Alexandria ...	3 0—6 0
—Canon Hall...	2 0—6 0

	s. d. s. d.
Grape Fruits ...	— 30 0
Lemons, per case—	
—Messina ...	14 0–25 0
—Naples ...	24 0–30 0
Melons, each ...	1 6—4 0
Nectarines, per doz.... ...	4 0–18 0
Nuts, Cob, per lb.	0 6–0 6½
Oranges—	
—Cape Navels, per case ...	18 0–20 0
—Valencia ...	12 0–15 0
—Brazilian ...	12 0–14 0
Peaches, per doz.... ...	6 0–18 0
Pears, English—	
—Pitmaston Duchess, per tray	3 0—4 0
—Buerré Hardy, per ½-bushel	4 0—7 0
—Doyenné du Comice, per doz.	2 0—6 0
—Conference, per ½-bushel	4 0—7 0
—Californian—	
—Buerré Hardy, per case ...	14 0–16 0
—Doyenne du Comice, per case	16 0–20 0
Pineapples, case	21 0–36 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, French, per pad ...	4 0—5 0
—Guernsey, per lb.	0 8—1 3
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-sieve ...	3 0—5 0
Cabbage, per doz.... ...	1 6—2 0
Carrots, per ½-bag, washed	4 0—6 0
Cauliflowers, flat, per doz. ...	3 0—6 0
Endive, French, per crate, 18's and 24's ...	5 0—6 0
—Batavia, per crate ...	4 0—6 0
Lettuce, Cabbage, 18's, 24's ...	2 0—3 0

	s. d. s. d
Mint, per doz. bun.... ...	1 0—2 0
Mushrooms—	
—cups, per lb.	2 0—2 6
—broilers ...	1 3—1 6
—field, per lb.	0 6—1 0
Parsnips, per cwt. ...	4 0—5 0
Potatos, cwt ...	4 0—6 0
Tomatos, English, per box. of 12 lbs.—	
—pink... ...	4 0—7 6
—pink and white	4 0—7 6
—white ...	3 6—4 6
—blue	3 0 4 0
—Guernsey ...	3 0—4 0
—Jersey ...	2 6—3 6
—Canary Island	12 0 20 0
Turnips, per doz. bun.... ...	4 0—6 0

REMARKS.—There is just a shade more activity in the market as compared with a week ago. An increasing volume of produce is arriving from abroad—Apples from the North American continent; Pears from California, central Europe and France; and Oranges from South Africa and Spain. Conditions in the English Apple market show a slight improvement after a rather quiet period. There is a slight shortage of really good cookers with the result that first-class Bramley's Seedling are making fairly good prices. Dessert Apples are also selling better, if good, but there is still a good deal of second-grade produce available which is difficult to clear at even poor prices. In the hothouse Grape section there is practically no change, the best English Grapes maintaining good prices, but other grades feel the competition of imported produce. The few good Peaches and Melons available continue to sell well. Tomatos are fairly plentiful, but there is not a large proportion of best samples available. Tomatos from the Canaries are in heavy supply and selling at reasonable prices. Cucumbers are selling fairly well and maintaining satisfactory prices. Hothouse Beans have recovered somewhat from the recent period of low prices and should now do well until the end of their season. Mushrooms continue to meet a steady trade, the quantities of field Mushrooms arriving being on a smaller scale. In the general vegetable market the enquiry for good Brussels Sprouts continues firm, and the trade all round is better. The salad section is also steady, with supplies just equal to the demand at present prices. Some Beans are now available from Madeira, and weekly arrivals will continue throughout the winter. In the Potato market supplies are in excess of demand, but quotations for the best sorts remain steady.

GLASGOW.

The cut flower market continued active last week when buyers were again attracted by the low prices of Chrysanthemums. Large quantities of blooms were provided by English and Scotch growers, and disbudded varieties failed to maintain the values of the previous week. Pink Consol made top prices, which ranged from 1s. 6d. to 1s. 9d for 6's; while other sorts received the following quotations:—Bronze Consol, 1s. 3d. to 1s. 6d.; La Pactole and Cranford Yellow, 1s. to 1s. 6d.; Rose Maid, Debutante, White Thorpe and Holicot Yellow and Bronze, 1s. to 1s. 3d.; Almirante and Sanctity, 8d. to 1s. 3d.; and Dolores, 8d. to 1s. Sprays fluctuated between 2d. and 6d. per bunch. Richardias advanced sharply and at 5s. to 8s. per bunch represent an increase of one hundred per cent. on the week. Carnations of all colours sold at from 2s. to 3s. 6d. per dozen; pink Roses, 2s. to 3s. 6d.; yellow, 1s. 6d. to 2s. 6d.; red, 1s. to 2s.; Lily-of-the-Valley, small, 6d. to 1s. per bunch; large, 2s. to 2s. 6d.; Michaelmas Daisies, 3d. to 6d.; Calendula, 2d.; Dahlias, 3d. and 4d.; Smilax, 1s. to 1s. 9d.; Asparagus, 3d. to 1s. 3d.; trails, 1s. 6d. to 2s. 6d.

In the fruit market sales of Apples were slow owing to the high prices resulting from the scarcity following poor crops in certain districts of Canada and the United States. McIntosh Red ranged from 15s. to 18s. per case; Jonathan, 14s. to 17s. 6d.; Grimes Golden, 14s. to 15s.; King of the Pippins, 25s. to 30s. per barrel; Wealthy, 28s. to 36s.; and York Imperial, 25s. to 27s. 6d. Doyenné du Comice Pears made 25s. to 27s. per case; Winter Nelis, 24s. to 26s. and Beurré Hardy, 13s. 6d. per half-case. South African Oranges sold at 20s. for 176's; Grape Fruits, Porta Rica 35s. per case; Blue Gorse, 40s. Californian Plums 11s. to 12s. per tray; Damsons and Blackberries, 4d to 5d. per lb.; Grapes, Black Hamburgh, 2s. per lb.; Alicante, 2s. 6d.; and Gros Colmar, 3s. 6d.

Vegetable prices were steady. Tomatos realised 7d. to 8d. per lb.; Beans, 8d. to 9d.; Mushrooms, 2s.; Cucumbers, 3s. to 5s. per dozen; Cauliflowers, 4s. to 6s.; Lettuces, 1s. 6d.; Leeks, 6d. per bundle; and Brussels Sprouts, 5s. per half-pot (20 lbs.).

GARDENING APPOINTMENT.

Mr. E. Miles, for the past eighteen years gardener to Captain the Rt. Hon. E. A. FITZROY, M.P., as gardener to the Hon. GEOFFREY HOWARD, Castle Howard, Welburn, Yorks. (Thanks for 2s. for R.G.O.F. Box.—EDS.)

CATALOGUES RECEIVED.

DIXONS, YORKSHIRE SEED ESTABLISHMENT, Hull.—Fruit Trees, Roses, Ornamental Trees and Shrubs, Herbaceous Plants, etc.

CHAPLIN BROS., LTD., Waltham Cross, Hertfordshire.—Roses, Fruit Trees, Ornamental Trees and Shrubs, Hardy Herbaceous Plants, etc.; Delphiniums.

WM. WATSON AND SONS, LTD., Killiney, Co. Dublin.—Flowering and Ornamental Shrubs, Conifers, Climbing and Wall Shrubs, etc.

WATKINS AND SIMPSON, LTD., Drury Lane, W.C.2.—Seeds of Flower and Vegetable Novelties.

AMOS PERRY, Hardy Plant Farm, Enfield.—Alpines, Perennials, Ferns and Bulbs.

MCHATTIE AND CO., Chester.—Roses, Fruit Trees, Ornamental Trees and Shrubs, etc.

W. WELLS, Junr., Merstham.—Hardy Alpine and Herbaceous Plants.

WM. CUTBUSH AND SON, LTD., Barnet.—Michaelmas Daisies; Roses.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official *Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

NEUTRAMMONKA.

505,032.—All goods in Class 2, which includes chemical substances used for agricultural and horticultural purposes.—Salzbergwerk Neu-Stassfurt, Stassfurt, Germany. October 16.

WAKELEY'S.

504,729.—Manures for horticultural purposes made principally from spent Hops.—Wakeley Bros. and Company, Limited, Honduras Wharf, Bankside, London, S.E.1. October 9.

LAWES'.

501,265.—Fertilisers, insecticides, soil sterilising compounds, worm-killer (for horticultural use), and weed-killer (chemical).—Lawes' Chemical Manure Company, Limited, 59, Mark Lane, London, E.C.3, and 22, Eden Quay, Dublin, Irish Free State. October 9.

RICCO.

503,468.—A hand implement of ordinary metal for distributing weed-killer. — Herbert Charles Rich, Barsham House, 2, Clapham Road, Bedford. October 9.

THE
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Supplement Plate.

Delphiniums at The Raft.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 45·3°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, November 6, 10 a.m. (Greenwich time). Bar. 29·7. Temp. 50°. Weather, Raining.

R.H.S. Autumn Show.

We wonder how many of our readers who visited the Autumn Shows held by the Royal Horticultural Society are satisfied with the new arrangements. Many have expressed their views verbally, but so far we have seen few of these views in writing or in type. There is, however, a largely held opinion in favour of one big Autumn Show held in a spacious building like Olympia or Holland Park Hall, because it affords a far better opportunity of demonstrating the beauty of autumn flowers and foliage than several sectional shows held in a smaller building or buildings. The Council of the Royal Horticultural Society is, however, in a rather difficult position with regard to a big Autumn Show. We believe such an exhibition has invariably resulted in financial loss, although this need not be a serious consideration, for the Society has now many thousands of Fellows to cater for and their annual subscriptions must be regarded as prepayment for horticultural services and entertainments, and educational facilities. We doubt whether any fortnightly meeting "pays," but such meetings are, of course, the very life of the Society. Apart from any question of financial loss from a big Autumn Show held in a hall that has to be leased for the occasion, the Council has now two halls to maintain and, not unnaturally, desires to make full use of them, by splitting up or sectionising the Autumn Show and holding several exhibitions at brief intervals, instead of the one we have become accustomed to. Gardeners are conservative people and do not like to feel they have lost a great Autumn Show, even although given at least three others of smaller dimensions in its place. Probably one of the principal grievances is the absence of direct communication between the old hall at Vincent Square and the new one in Greycoat Street, Westminster. Nevertheless, although we would all prefer the whole show under the one roof, in fairness to the Council we must not overlook the fact that the general body of Fellows agreed to the construction of the new hall, minus a direct communication with the old one. The Council has done its best in regard to an Autumn Show (held in parts), and a very good best it has been. There are, however, one or two other grievances of sufficient importance to be mentioned. The Orchid enthusiasts have felt that their opportunities for business and display were severely curtailed by the sectional autumn displays, from which they were, for the most part, excluded; their complaint is worthy of consideration, although as they had one show—and a glorious show it was—practically all to themselves, they cannot claim to have been treated cavalierly. But there are other folk to whom little consideration appears to have been given. We refer to the gardeners, so many of whom have visited the great Autumn Show for educational purposes and to meet old friends. These could find the time and incur the expense for one show, but cannot afford the time or the money to visit three shows. To wealthy amateurs, and even a gardener living near London, this may appear to be a small grievance, but we can assure them it is not—and the argument that long distance Fellows and gardeners may choose to visit the sectional Autumn Show which most concerns them, is a very poor one, and also a trifle mean. We vote for one big Autumn Show in one big hall—and the Society can well afford it.

Our Supplement Plate.—Delphiniums are now to be had in such a wide and delightful range of colours that a border composed entirely of these, such as that portrayed in the Supplement Plate we have pleasure in presenting with this issue, presents a very impressive display when in full bloom. Mr. H. Walkden, in whose garden at The Raft, Derbyshire Road, Sale, this border is a special feature, informs us that the well-known varieties Belladonna semi-plena, Persimmon and Lamartine are used for the front rows, with Musis Sacrum, pale blue, and its white sport Walkden's White, directly behind them. For the intermediate rows the tall varieties have proved most useful, being replanted each year to keep them dwarf. The remaining space is planted with seedlings and various named sorts, which include Legionnaire, semi-double, bright blue; Statuaire Rude, large, double, pale mauve; Firmament, large, semi-double, dark blue and violet; Rene Gilbert, semi-double, bright blue; and Henri Moisson, semi-double, dark violet with brown centre.

Holme Lacy Estate.—A lady, who wishes to remain anonymous, has made a free gift of the beautiful estate of Holme Lacy to the county of Hereford, a condition being that the mansion is not to be destroyed or sold without first consulting and securing the consent of the donor. The Holme Lacy estate, which is situated about five miles from the city of Hereford and includes some finely wooded and rich meadow land, covers an area of three-hundred-and-forty acres. The River Wye passes through it, and lovely views of the Wye Valley can be obtained from it, while the mansion is regarded as the largest and most magnificent of the historical seats of Herefordshire.

Drought in the Arnold Arboretum.—The phenomenal drought which Massachusetts, in common with other states on the American Continent, has endured, will long be remembered for it caused grave anxiety among all who garden. In late June the Arnold Arboretum enjoyed one good rainfall, but not another worth mentioning until October 2. For fully two months supplying water to suffering trees and shrubs was the principal work engaged upon. Fortunately, there was no great heat, but at the height of the drought it appeared as though many plants must die. Thanks to the water stored from the heavy rains of spring, the trees suffered but little, and as autumn arrived a general freshening among all woody plants was noticeable; it is now difficult to realise that extreme drought has been experienced. The power of resuscitation enjoyed by plants is, indeed, marvellous.

Gladiolus Blackwellii.—The Gladiolus which received an Award of Merit on October 23, when shown by Mr. Collingwood Ingram as Gladiolus sp. (see p. 334), has now been identified by Dr. O. Stapf as Gladiolus Blackwellii, L. Bolus.

British Empire Trade Exhibition, Buenos Aires, 1931.—Official notice has now been given to the management of the great British Empire Trade Exhibition to be held in Buenos Aires in 1931, that His Majesty's Government has recognised the importance of the occasion and decided to participate on a suitable scale. For this purpose the Government exhibits will be housed in one of the finest buildings in the extensive exhibition grounds, which have been so generously lent by the Argentine Rural Society. The Government exhibits, besides illustrating the contributions of the British people to the world's progress, will show much of the development of our British Colonies and Protectorates. The Dominion of Canada has already reserved another building of 40,000 square feet, thus demonstrating the increasing interest taken by the Canadian Government and Canadian manufacturers in South American trade.

Horticultural Club Lectures. — Mr. F. Kingdon Ward has (provisionally) consented to lecture before the Horticultural Club, at St. Ermin's Hotel, Westminster, on December 10, when he will give an account of his recent plant collecting expedition in Asia. Mr. H. Cowley will give a lecture on his recent trip to the Alps, at the meeting to be held on January 14, 1930.

Mr. Alex. S. Galt.—We learn with very deep regret that Mr. Alex. S. Galt, so long associated with the horticultural work carried out under the Department of Agriculture, Leeds University, has been so seriously indisposed of late that he has felt compelled to tender his resignation to the Senate. His resignation has been accepted, and the Senate has made arrangements for Mr. Galt's retirement in March next. Old Kewites and many other friends will hope that after a period of rest, Mr. Galt may be restored to full health and wonted vigour.

Royal Horticultural Society of Aberdeen.—The Annual Report of the Directors of this Society, which is to be submitted to the Annual Meeting of the members on the 9th instant, states that owing to the very unfavourable weather which prevailed during the second and third days, the annual show held on August 15, 16 and 17, in Hazlehead Public Park, Aberdeen, resulted in a small deficit. The income for the year amounted to £648, while the expenditure was £651. The balance to the credit of the Society now amounts to £471 10s., irrespective of £320 of legacies held for specific purposes. The directors record with sincere regret the death of one of the Honorary Vice-Presidents, Mr. A. Emslie Benzie, of Morkeu, who took a keen interest in the affairs of the Society, and was a generous contributor to the funds. Seven of the directors retire at this time. The directors make an appeal to their fellow members to help them in their efforts to increase the membership, and so add to the usefulness of the Society.

New Park for Chesterfield.—The Chesterfield Corporation has purchased fifteen-and-a-half acres of land in the west end of the borough;

this is to be laid out as playing fields at a cost of £4,500, and will be known as the Somersall Playing Fields. The Corporation is also about to spend £10,000 on improving existing recreation grounds in the borough. The Parks Committee has also taken over the Goldwell Hill gardens and glass, to be used as a Corporation nursery, and two new glasshouses are to be erected at Queen's Park.

Potato Arran Banner.—Note is made in *The Gardeners' Chronicle* of November 2 (p. 338) of the fine results obtained by Mr. William Gardner, Roddinglaw, Gogar, Midlothian, with Potato Arran Banner showing a yield of 19 tons 8 cwts. per acre. Mr. R. Rogie, Easter Anguston, Culter, some eight miles from Aberdeen, has gone one better. Last year he planted one specimen of this variety, retaining the whole of the produce of the stem for planting this year. The "seed" thus conserved enabled Mr. Rogie this year to plant an area of fourteen yards in four drills. From this he has obtained a yield of 3¾ cwts., which is equal to 20¼ tons to the acre. The crop is remarkably good in quality, with few small and very few abnormally large tubers. In Fifeshire, too, some very good results are reported from this variety. All over Scotland the Potato crop has been eminently successful this season, but there is a fly in the ointment—the prices growers are obtaining are nothing short of a scandal. Between the grower and the consumer the dice is heavily loaded against the former. Many growers are making personal calls on urban consumers for orders, and it is pleasing to note this elimination of the middle-man is giving highly satisfactory results.

"The Journal of Forestry."—The quarterly issue of the *Journal of Forestry* (No. 4, Vol. XXIII, October, 1929), issued by the Royal English Arboricultural Society, contains much of interest to foresters and students of silviculture. "The Choice of Species" is the subject of the Editorial note; while original articles included are: "Some Impressions of South African Forestry," by Mr. C. P. Ackers; "Rough Hills Experimental Plots, Royal Agricultural College, Cirencester," by Mr. A. D. C. Le Seur; and "Trees suitable for Street Planting: Their Maintenance as Required in Large Cities and Industrial Centres," by Mr. J. Smith. Mr. W. Dallimore contributes notes on the International Congress of Forestry Experimental Stations, held in the Forestry College at Stockholm from July 21 to July 28 of the present year. The latter portion of the *Journal* is devoted to Official Information, and reports on the Annual Meeting, the Tree-felling Competition, the annual excursions of the Northern, East Anglian and South-Eastern Divisions, and of various forestry exhibitions held this year. An index to Volume XXIII is issued with this publication.

Meliosma myriantha.—Just after our issue of November 2 had gone to press, we received several twiggy growths of Meliosma myriantha from Mr. J. Comber, Nymans Gardens, Haywards Heath. The ovate-lanceolate leaves were gorgeously coloured in gold, orange and scarlet, while the several panicles of fruits were added attractions. On p. 348, Mr. Osborn refers to the flowers of Meliosma as small, yellowish-white and fragrant. In *Trees and Shrubs Hardy in the British Isles*, Mr. W. J. Bean refers to the fruits of this species as "crowded in a broad panicle, each about the size of a peppercorn, black." The fruits sent by Mr. Comber were of peppercorn size, but not crowded, and their colour was from pinkish-cream to coral-red. Meliosma myriantha is evidently a fine subject for the provision of brilliant autumn colour in the warmer parts of the country.

Harrogate Agricultural Show, 1930.—The Harrogate Agricultural Show, of which H.R.H. Princess Mary Countess of Harewood, is Patron, has grown rapidly in importance in recent years, and next year's exhibition has been fixed for Friday and Saturday, August 8 and 9. This year no show was held on account of the visit of the Royal Agricultural Society, but it is intended to re-establish the show in all sections, including the usual agricultural show, the poultry section, dog show and especially the horticultural section which was such a successful feature in 1928. The farm competition is to be continued, and included in the attractions will be the parades, horse leaping, sheep dog trials and probably military displays. When the last show was held the entries reached 4,600, and it is hoped this figure will be maintained, or increased, in 1930.

Mr. W. Petty.—Comparatively few men commence their horticultural careers in the garden where, in later life, they become head gardener. Mr. Petty is one of the few. He began his gardening life in the gardens at Melchet Court, then the seat of the late Lady Louisa Ashburton, under Mr. G. Hall. Here he was employed in all departments, and obtained sufficient experience there to fit him for the position of foreman to H.I.H. the late Empress Eugenie, at Farnborough Hill. In this latter position, Mr. Petty had charge of the floral decorations and was thus brought into contact with many members of foreign royal families.

MR. W. PETTY.

His next appointment was that of general foreman under Mr. A. R. Searle, at the Marquis of Northampton's garden at Castle Ashby. In 1913 he returned to Melchet Court, as foreman, but during the war he served on the western front, and after the armistice proceeded to Germany with the Army of Occupation, where he remained for eight months. Mr. Petty regards that eight months as one of the best educational periods he experienced. He returned to Melchet Court in 1919, when he resumed his position as foreman, and continued as such until in 1925 he was appointed to the full charge of Lord and Lady Melchett's gardens. Since 1925, many alterations have been made in the gardens and grounds, and in his work Mr. Petty has received the heartiest encouragement from his employers, both of whom are keen gardeners. There is now a good collection of Orchids at Melchet Court. Carnations and Chrysanthemums are made special features, and with both these subjects Mr. Petty has proved a skilful cultivator and successful exhibitor, while he has also been the raiser of several excellent perpetual-flowering Carnations.

Proposed Works in the London Parks.—In a written reply to Sir Newton Moore, who asked, in Parliament, "whether, in view of the concern expressed by residents in the neighbourhood of Owens Pond, Richmond Park, and others, in connection with certain operations in progress which it is alleged will interfere with the natural beauties of the park, he will give instructions for the contemplated work to be suspended pending representations being made to him," Mr. Lansbury states: "Judging by representations which have been made to me, there appears to be considerable misapprehension as to what is proposed. All that is being done at the moment is to clean out the pond. The bottom will not be cemented, nor will any permanent buildings be erected. It is proposed to have on the pond paddle-boats, such as gave enjoyment to some 40,000 children in Bushy Park last summer, and it is hoped to reserve an arm of the pond for the sailing of toy boats. With a view to preventing further misunderstandings, I am circulating in the Official Report, a list of all the proposed works in the Royal Parks towards which money has been subscribed." The list circulated is as follows:—Shelters: Greenwich Park, Kensington Gardens, Richmond Park, Bushy Park and Primrose Hill; Boating Ponds: Greenwich Park, Regent's Park and Richmond Park; Sandpits: Kensington Gardens, Richmond Park and Bushy Park; Swings, etc.: Various parks; Bathing Facilities: At the Serpentine; Hard Tennis Courts: Greenwich Park; Sun-bathing Facilities: Regent's Park; Games Ground: Hyde Park (see p. 359); and Pavilion, Regent's Park

The "Botanical Magazine."—In the recently issued Part II, Vol. CLIII (1927) of Curtis's *Botanical Magazine*, the following plants are figured and described:—Rhododendron calophytum (t. 9,173), Gaultheria Veitchiana (t. 9,174), Cyrtanthus rhododactylus (t. 9,175), Siphonosmanthus suavis (t. 9,176), Acacia rhetinodes (t. 9,177), Salvia caerulea (t. 9,178), Encyclia Mooreana (t. 9,179), Cosmos diversifolius (t. 9,180), Briggsia amabilis (t. 9,181), Potentilla nepalensis (t. 9,182) and Euonymus grandiflorus forma salicifolius. The handsome and very decorative Rhododendron calophytum was discovered by Père G. David in West Szechuan, in 1869, and was later found in the same area. This species, which produces large trusses of up to thirty fragrant flowers, white, flushed with rose, is stated to be hardy throughout Great Britain and capable of thriving in almost any good garden soil that contains not more than a modicum of lime, in a shady position with sufficient moisture about the roots. This lovely species was the subject of the Supplement Plate in the issue of *The Gardeners' Chronicle* of June 20, 1925 (Vol. LXXVII), in which issue it was described (p. 431). Gaultheria Veitchiana, beautiful both in flower and fruit, was first described by Professor W. G. Craib, in *Gard. Chron.*, Vol. LII, p. 188 (1912). It is closely allied to G. Hookeri, a Sikkim species, and although discovered by Père David so long ago as 1869, it was not introduced to cultivation until thirty-five years later, by Wilson, who sent seeds of it home to Messrs. James Veitch and Sons. This Chinese Gaultheria usually forms a more or less prostrate bush; it bears crowded racemes of white, pink-tinted flowers which are followed by striking torquoise- to china-blue fruits. It grows well in peaty soil with an abundant supply of moisture and is a useful acquisition among Ericaceous shrubs. Cyrtanthus rhododactylus is a very attractive South African Amaryllid, very suitable for greenhouse cultivation in this country as it can be had in flower in early spring provided it is grown in a loose compost of sand and loam and given free ventilation. It is free-flowering, its slender, tubular blooms, which are borne in umbels of six to eight, being rosy-scarlet. Siphonosmanthus suavis is a Himalayan plant of the Natural Order Oleaceae, and was discovered so long ago as 1838 by Griffith. This species was described by King under the name of Osmanthus, but it is, with the plant known generally as Osmanthus Delavayi, so distinct from Osmanthus fragrans, the prototype of the genus, that the generic name of Siphonosmanthus has been created for these two species. The material from which the plate was obtained was provided by the Marquis of Headfort, who states that S. suavis is quite hardy in his garden at Headfort House, Kells, Co. Meath, Ireland, where it flowers in mid-winter. Owing to its larger leaves it is more ornamental than S. (Osmanthus) Delavayi, but is, perhaps, not so free-flowering; they are both sweetly scented. Acacia rhetinodes is one of the most valuable of the florists' "Mimosas" and, next to A. dealbata, is the commonest Acacia on the French Riviera. In gardens it is often misnamed A. floribunda or A. fragrans. It may be regarded as hardy in the south-west of England, and has survived in the open at Leonardslee, in Sussex, but may generally be regarded as a free-growing greenhouse shrub or tree, producing its rather loose panicles of globular, fragrant flower-heads very freely. The home of Salvia caerulea is in eastern and south-eastern Brazil and eastern Paraguay (probably also in north-western Argentine), but it would appear to have become naturalised in Chili and about the city of Buenos Aires. It is naturally a perennial or under-shrub, but in this country is, perhaps, best treated as an annual. If sown under glass in early spring and the seedlings are planted out, they will form fine bushy plants and produce their grand, deep blue flowers freely in September and October. Autumn-sown plants flower correspondingly earlier, and as seeds are set freely, a stock may soon be obtained. This plant received an R.H.S. Award of Merit on September 21, 1926. Encyclia Mooreana, closely related to the genus Epidendrum and by some authorities included in it, is a native of Costa Rica, whence it was introduced to this country in 1888-9. At Kew, E. Mooreana is grown in a winter temperature of 50° to 55°, and the temperature is kept so low as possible during the summer. While resting during the winter, the roots of the plants are kept fairly dry, but when in growth a liberal supply of water is needed; a suitable compost is one of Osmunda fibre and Sphagnum-moss. The Mexican Cosmos bipinnatus has been given many synonyms, including Bidens dahlioides, under which it was figured in *Gard. Chron.*, in 1910 (Vol. XLVIII, p. 226, Fig. 89). It is not uncommon in gardens, and thrives in a sunny position in light, gritty soil; as it cannot be regarded as hardy, it is best to lift the tubers and store them, like Dahlias, for the winter. Briggsia amabilis is an interesting Gesneraceous plant from China which may be grown under normal greenhouse conditions in this country, but requires moist air and shade from bright sunshine. Its pendulous, wide, tubular flowers, borne either singly or in two to three-flowered cymes, have cream-coloured to greenish corollas —or dull orange—with seriate spots on the ventral side and brownish or purplish-orange spots within. The deep rose-red-flowered, hardy and free-growing herbaceous perennial Potentilla nepalensis is already popular in gardens, being especially suitable for growing in sunny positions on the rock garden. Euonymus grandiflorus forma salicifolia is a distinct and very handsome Spindle Tree from China and India. It is stated to be hardy in the south of England and Ireland, fruiting very abundantly in good years, and with highly ornamental effect.

Playing Field in Hyde Park.—Through the generosity of Sir Howard Frank, Chairman of the Finance Committee, the National Playing Fields Association has offered £5,000 to Mr. George Lansbury, the First Commissioner of Works, for the purpose of laying-out the exhibition grounds in Hyde Park as a playing field to provide facilities for football, cricket, netball, bowls, and a putting green. The offer has been accepted, and it is expected the work of laying-out the field will begin shortly.

National Trust's Scheme to Preserve Downlands.—The National Trust has under consideration a scheme which, if successfully carried out, will secure for the public practically all the downland between Seaford and Eastbourne, a distance of nearly seven miles, and also the whole of Cuckmere Valley from Birling Gap to Litlington; the acquisition of six of the cliffs known as the "Seven Sisters," is included in the scheme, and negotiations will be continued to secure the seventh from disfigurement. The land now to be secured comprises Cuckmere Haven, Hope Cave, Highover Down, Hanging Wood, Charleston Manor, Exceat Farm, Peak Dean, and six of the "Seven Sisters"; with the land already protected, a total area of about sixteen square miles will thus be secured for preservation. The ultimate cost of carrying out the whole of the scheme is not expected to exceed £25,000, and the Trust accordingly invites subscriptions from the public towards this amount.

Gardener's Widow attains her Hundredth Year.—Mrs. Ann Leighton, The Craigs, Ellon, Aberdeenshire, widow of the late Mr. Leighton, for many years gardener at Auchmacoy, near Ellon and latterly a nurseryman, celebrated her hundredth birthday on Saturday, November 2. Although a little dull of hearing, and with eyesight a little dimmed, Mrs. Leighton is yet exceedingly active, and rarely has she required medical attention. When in their prime, Mr. and Mrs. Leighton set out to attain a great ambition—the transformation of the "wilderness of the Craigs" into a profitable pleasaunce. Early and late they toiled, assisted by their young family, Mrs. Leighton putting in a day's work with the spade and on her knees among the weeds, until the Leighton Nurseries became famous in the district. They remain so to this day, but they are now known as the Johnston Nurseries, a married daughter and her husband carrying on the work so well begun by Mr. and Mrs. Leighton. The celebrations were opened with a large gathering of children, grandchildren and great-grandchildren, and many friends. After a short devotional service, Provost Cairns read the royal message sent by the King and Queen in which their Majesties hoped the centenarian would spend an enjoyable day, and that the remainder of her life would be tranquil and happy. Many other messages from all parts of the world from descendants and friends of the old lady were also read. Following this came valuable presentations and the cutting of the birthday cake with its one hundred candles. It was a memorable occasion, but Mrs. Leighton was a little bewildered over the fuss being made of an "auld wife." Her past birthdays, she declared, had just "slipp't by without muckle notice." Work hard and keep slim, is her recipe for a long life.

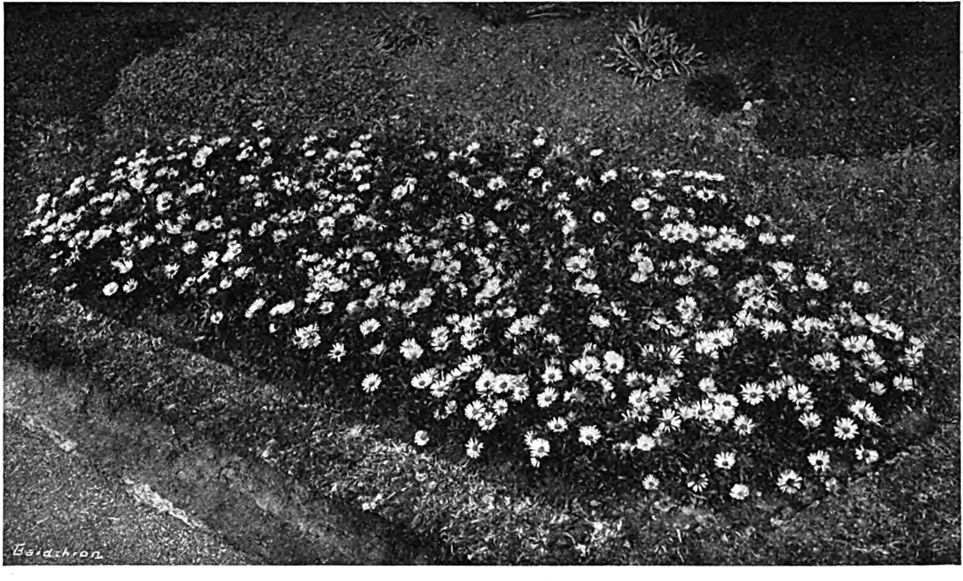

FIG. 163.—ODONTOSPERMUM MARITIMUM.
(see p. 364).

Appointments for the Ensuing Week.—Monday, November 11: Derbyshire Horticultural Association's meeting. Tuesday, November 12: Brighton, Hove and Sussex Horticultural Society's Show (three days); Birmingham Chrysanthemum Society's Exhibition (three days); Jersey Gardeners' Society's meeting. Wednesday, November 13: Gainsborough Chrysanthemum Society's Exhibition; Bristol Horticultural and Chrysanthemum Society's Exhibition (two days); Highgate Chrysanthemum Society's Exhibition (two days); Wimbledon Gardeners' Society's Exhibition; Aberystwith Chrysanthemum Society's Exhibition; Buxton and District Chrysanthemum Society's Exhibition. Thursday, November 14: Ipswich Gardeners' Association's Exhibition; Rotherham and District Horticultural and Chrysanthemum Society's Exhibition (three days); Sheffield Chrysanthemum Society's Exhibition (three days); Hitchin Chrysanthemum Society's Show. Friday, November 15: Leeds Paxton Society's Exhibition (two days); Bolton Horticultural and Chrysanthemum Society's Exhibition (two days); Whitley and Monkseaton Chrysanthemum Society's Exhibition (two days); Dunfermline Horticultural Society's Chrysanthemum Show (two days). Saturday, November 16: Burton-on-Trent Chrysanthemum Society's Exhibition.

"Gardeners' Chronicle Seventy-five Years Ago.—*Fuchsia Dominiana.*—A beautiful example of this truly gorgeous plant was exhibited at 21, Regent Street, on Tuesday last, and without any exaggeration it may be said to have been the admiration of everyone. There is now no doubt that it is one of the finest autumn and winter-flowering conservatory plants we have. The merit of raising this beautiful plant is due to Mr. Dominy, the foreman of the plant department of the Exeter Nursery; it consequently bears his name as a memento of his zeal and ability in the performance of his duties. It is a seedling between Serratifolia multiflora and spectabilis, having the fine free growth of the former and the splendid flowers of the latter.

	s.	d.
A few extra strong specimen plants, two to three feet	21	0
Fine large plants	10	6
Small Plants	7	6

Exeter and Chelsea Nurseries, November 11.

N.B.—The specimen exhibited on Tuesday can be seen at Chelsea.—*Advertisement in Gard. Chron., November* 11, 1854.

Publications Received.—*The Differentiation of the Species of the Genus Brucella*, by I. Forest Huddleson, Technical Bulletin No. 100.—*A Test for Water-soluble Phosphorous*, by C. H. Spurway, Technical Bulletin, No. 101.—*Causes and Effects of Soil Heaving*, by M. M. McCool and G. J. Bouyoucos, Special Bulletin No. 192; *The Quarterly Bulletin* of the Agricultural Experiment Station, Vol. XII, No. 1, August, 1929; all from Michigan State College, East Lansing, Michigan.—*Celery Production and Marketing in the Isle of Axholme*, by Arthur Jones, B.Sc., and S. M. Makings, N.D.A., pp. 63. Survey Studies, No. 1. Midland Agricultural College, Sutton Bonnington, Loughborough; price 1s.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Brazilian Miltonias.—Members of this group of autumn-flowering Miltonias that are passing out of flower, such as M. spectabilis and its richly coloured varieties, together with some of the natural hybrids, require a light and well ventilated position near the roof-glass in an intermediate temperature, in order to complete the season's growth. When this is accomplished, very little water will be needed to keep the pseudo-bulbs in a normal condition. Full exposure to all available light is necessary at this season to assist the ripening of the growths of these Miltonias so that they may pass successfully through the winter months. At this period the foliage of some varieties may turn pale yellow in colour during the ripening process, but this need not cause alarm, provided the plants are not allowed to shrivel. Later-flowering species of the Regnellii and Clowesii section should be treated in a similar manner after flowering.

Seasonable Routine Work.—With the advent of cooler weather and the consequent fluctuations in outside temperatures, especially during the autumnal gales of wind and rain, and also during quiet weather, when there is a tendency to sharp ground frosts at night, followed by bright sunshine during the middle of the day, it is difficult to follow any definite rules for the management of the various departments. At this season, great fluctuations of temperature should be avoided so much as possible, by paying strict attention to ventilating the houses, admitting air on the leeward side, especially during cold and windy weather. Careful control of the heating of the hot-water pipes should be practised. At this season, various groups of Orchids, such as Cattleyas and their allies, Cymbidiums, Epidendrums and Vandas, especially V. coerulea, require all the available light possible, with a reasonable quantity of fresh air to assist in ripening the new growths so that they may withstand the winter well. Other shade-loving Orchids, such as Phalaenopsis, Odontoglossums (notably the newly-potted plants), bulbless Zygopetalums and small seedling Orchids, may still require light shading during the brightest part of the day. In smoky districts where dirt accumulates on the glass and obscures the light from the plants, it is necessary to wash the outer surface of the roof-glass several times during the next three months, also to wipe the inside surface occasionally in addition to the general cleaning of the house. If possible the annual washing of the houses should be done early in the autumn, to allow the laps of the glass to become closed again before the cold, wintry winds arrive, when temperatures are difficult to maintain, while the extra air admitted through this operation in the early autumn tends to assist the ripening of the growths. With many Orchids, notably Cattleyas, Vandas and Dendrobiums, much less water will suffice, although complete drying off (except in the case of deciduous Orchids that have completed their growths) should not be attempted; sufficient water is necessary to keep the pseudo-bulbs and leaves in a normal and plump condition, without exciting them into premature growth.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Raspberries.—The weather conditions during the past season have not been conducive to the well-being of the Raspberry as it is essentially a moist season fruit, and it is only where the soil is of the most fertile kind, or has been deeply mulched to conserve the moisture that the young canes have grown to the average height. The canes have now lost most of their leaves and may be tied securely to the wires or other supports. In each case tie in only the best canes spacing these out, on the wires at from four to six inches apart, and remove the immature tips. All the weak canes in the rows should be cut back close to the soil level, as should also the stubs of the old fruiting canes, as this removes a means of shelter for the caterpillars of the Raspberry moth (Tinea rubiella), and the pupae of the Raspberry beetle (Byturus tomentosus. Suckers that arise some little distance from the rows should be pulled up and reserved for forming new plantations. When the tying has been completed, a good mulching of well-rotted farmyard manure should be applied to the rows, allowing it to extend outwards eighteen inches or more from the stems on either side of the row. The soil not so covered should be lightly forked over and left tidy for the winter season. Where there is a scarcity of farmyard manure, bone-meal four parts, and sulphate of potash one part, should prove an excellent substitute. The mixture should be applied at the rate of two good handfuls to the yard of row, and should be very lightly forked into the surface soil. The spade should on no account be employed between the rows as it severs the roots and increases the risk of suckering; only the very lightest form of cultivation should be employed. The autumn-fruiting kinds have fruited well in spite of the very dry conditions. For the sake of tidiness they may now be semi-pruned, the final pruning being deferred until February or March. Where it is intended to form a new plantation of Raspberries, the soil should be thoroughly trenched and well enriched with some form of organic manure, and the top layers of soil well sprinkled with bone-meal and basic slag. This preparation should be carried out at once so that the soil may settle down somewhat before the planting takes place early in February. The types of soil suited to different varieties vary, so a trial is recommended before the extensive planting of any one variety is carried out. A few of the best-flavoured sorts are Pyne's Royal, Park Lane and Red Cross; while for bottling or preserving the varieties Lloyd George, Laxton's Prolific and The Devon are excellent in every way. The Hailshamberry, Lloyd George and November Abundance are a few of the best autumn-fruiting varieties.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Shrubs for Forcing.—Flowering shrubs are very useful subjects for producing a wealth of bloom during the early spring months, and they can be used either for cut flower purposes or for bold grouping in the conservatory or dwelling-house; for the latter purpose there is nothing to surpass them for the small outlay they incur. To mention only a few that may be successfully flowered under glass, perhaps the following are the most suitable:—Lilac, Prunus, Pyrus, Viburnums (including the sweetly-scented V. Carlesii), Spiraeas, Wistarias, Japanese Cherries, Kerrias and the many varieties of Cytisus. Intending growers of these delightful subjects should procure stocks so soon as possible, placing them in receptacles of suitable sizes directly they are received. Plants that have been specially grown for this purpose give the best results. After potting, they should be stood out-of-doors, plunging the pots to their rims in ashes; during severe frosts extra protection is necessary to prevent the receptacles being broken. When the time arrives to start the shrubs into growth, it is wise to commence with a low temperature and gradually increase the amount of heat each week until an intermediate temperature is reached.

Carnations.—Plants which were housed during the month of September are now producing flowers in abundance and have made considerable growth since that time; the work of disbudding needs constant attention, and in some cases the removal of surplus growths may be necessary. Close staging of the plants should be avoided so far as possible to prevent the growths becoming weakly. The atmosphere of the house should be kept buoyant by careful ventilation night and day, and only during severe weather with cold, east winds, should the top ventilators be closed; maintain a steady circulation of warm air throughout the house by the aid of the hot-water pipes at night and during dull, sunless weather. Continue to feed the plants lightly, but heavy feeding should be guarded against, or weak growth and burst calyces may result. Rust and red spider are enemies to Carnations, and where they are not yet very much in evidence, three ounces of salt thoroughly mixed in two gallons of water will act as a deterrent to them if sprayed on the plants with force occasionally; in very severe cases of attack Volck—used according to directions—should be employed.

Propagating Carnations.—The propagation of Carnations should now be carried out. The young shoots for this purpose should be selected carefully, choosing those from healthy plants only. Some growers favour rooting the cuttings in clear sand, but here we root them in equal parts of loam and sand, in a temperature of 55°.

Watering.—At this season of the year and during the coming winter, much care is needed in giving water to plants. With the lower temperatures maintained in all plant houses during the winter, there should be a corresponding reduction of atmospheric moisture, and during cold, damp weather the floors should be kept comparatively dry. Watering, generally, should be done early in the day to allow the superfluous moisture to disperse somewhat before night. Endeavour always to maintain a free circulation of air, except when severe frosts or foggy weather prevail.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Strawberries.—Owing to the present mild and fine weather, late Strawberry plants are still making leaves, a condition which necessitates keeping the earliest plants as inactive as possible and fully exposed in an open part of the garden. If very early Strawberries are wanted, now is the time to select plants most suitable for this purpose. Those with hard, red, single crowns, and which have filled their pots with roots, are most likely to respond to gentle forcing. If the plants are well plunged, they should not need much water, but any state approaching dryness should be avoided. If red spider or mildew has been troublesome, each plant should be immersed in sulphur water before being taken inside. The general stock of Strawberry plants should be moved occasionally to prevent the roots leaving the pots, and more room may be given at the same time to let light and air among them. Nothing will be gained by feeding the plants after this date; any plants which were put out in August for supplying forcing runners for next year should be treated as carefully as those grown in pots.

Early Figs.—Early Figs, whether grown in pots or borders, have had a fine season for ripening their wood and roots, and should be in excellent condition when the time arrives for starting them in December, that is, if ripe fruits are wanted early in May. Pot trees, as a rule, are most in favour, and for very early work are preferable to permanently planted trees, not that the crops they produce are heavier, earlier or better, but they can be moved or changed in the event of failure. Trees for very early forcing should be thoroughly ripe and well furnished with embryo Figs, and they should be fairly root-bound, a condition which can be secured by reducing the roots and repotting, or giving a small shift early in the autumn. Unless these essential factors are present, no benefit will be gained from an early start. If trees are still out-of-doors, where they have received very little water since the end of September, they should be taken in and the crocks examined, and the wood, young and old, carefully washed with soapy water, care being taken that the young Figs are not scratched. If the presence of worms is suspected, a soaking of lime-water should remove them. Bottom-heat being an important factor, this should be provided by the introduction of fermenting material consisting of Oak or Beech leaves and a little stable manure to a depth of about two feet. Place the trees in position and gradually water the trees to get the balls of soil and roots into good condition by the time the fermenting material is introduced and the trees started.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Dahlias.—These, in many places, are now damaged by frost, and the growth may be cut down, leaving a good length of stem so that the labels of the various sorts may be securely attached to them preparatory to lifting and storing the tubers for the winter. When lifted, the tubers should be exposed in a frost-proof shed and allowed to dry a little. With such treatment they should keep much better during winter than if put away so soon as they are lifted. Any shed or cellar will do as a store-room, provided it is frost-proof. There are so many varieties of Dahlias in the various sections of equal merit, that to make a selection one must be guided by individual taste and the purpose they are required for. While the large collections so well grown and arranged in the various public parks are of extreme interest, for the private garden a few of the very best varieties in large beds or borders are more useful. Varieties for this purpose should include Reginald Godfrey, a really good scarlet of erect growth and free-flowering, the flowers being borne on stiff, wiry stems well above the foliage. A later introduction, Bishop of Llandaff, is a Miniature-flowered Paeony Dahlia of a rich, bright crimson, and should prove of great merit for bedding. Mrs. A. S. Galt is a delightful, bright scarlet Dahlia with dark purple foliage, while a large-flowered Decorative variety of this colour is Mevrouw Ludwig. Seafield, a charming pale rose with a deep orange base, is one of the best of its colour, having stiff, wiry stems, while the colour shows well under artificial light. A good companion to this will be found in Mrs. H. C. Scrimgeour, with flowers of a deeper orange. Our Annie is still one of the best for bedding purposes. Pink Pearl and Pink Perfection are also to be recommended. Among the large Decorative sorts of this shade, Jersey Beauty is probably the best. Others belonging to the same section, of proved merit for garden decoration, are H. B. May, pale orange-salmon, with white tips; White Friar and White King; and W. D. Cartwright, free-flowering, orange-yellow, with the flowers held well above the foliage. Among the small-flowered Decorative sorts, May has been very free-flowering; Rose Elegance, Cheal's Pink and Freda can also be recommended. Some of the older varieties are not to be despised for bedding purposes; such well-tried favourites as Dobbie's Bedder, Barlow's Bedder, Crimson Flag and Prestige are all useful where masses of colour are wanted. Few new varieties of outstanding merit have been added to the bedding section during recent years, such well-known kinds as Coltness Gem, H. J. Jones, Kingcup, Lady Aileen, Julius, Paisley Gem, L'Innocence, Kathleen, and Pink Coltness Gem, being still the best. The Cactus Dahlias, generally, from a garden point of view, still leave a lot to be desired, but they are improving every year; those of recent introduction that have reached the standard of a plant useful for garden decoration include Pink Favourite, La France, Alice Amos, Mrs. Stuart Sandeman, Redpole, Snow Bunting, Stedfast and Edeghem.

Begonias.—Tuberous-rooted Begonias that have been lifted from beds in the open should be placed in a position where they can be dried off, afterwards picking them over and storing in a dry, frost-proof shed.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Vegetables in Store.—On wet days, when no work can be done out-of-doors, Potatos in store should be gone over carefully and any bad ones cleared away. Onions, and any other stored vegetables, should also be inspected.

Seed-sowing.—A few rows of Broad Beans, also early Peas of the round-seeded type, may be sown in a south border.

Broccoli.—Plants of Broccoli should be heeled over before severe weather sets in. This is done by removing the soil on the north side, inserting the spade its full depth on the opposite side, and tilting the plants over to the north making them firm at the base by treading the soil about them as the work proceeds.

Runner Beans.—As this crop is now finished, any pods that have been left for seed should be picked and laid on a dry shelf to thoroughly ripen the seeds; the sticks should be pulled, cleared of the Bean stalks, and tied up in bundles and placed under cover for use next year. The position of the rows should be marked, as next year Parsnips, Carrots, etc., may be sown where the Beans were grown.

FIG. 164.—PLUMIERIA BICOLOR.
(see p. 362).

Salsify and Scorzonera.—The roots of these may now be lifted, using a spade for this purpose, as the roots are very easily broken. Trim off the foliage and arrange the roots neatly in a heap in a place were frost cannot reach them, and cover them with plenty of sand.

Celeriac.—Those that are sufficiently large should be lifted and after being cleared of their leaves, removed to a cool place and placed in sand.

Jerusalem Artichokes.—The tubers of Jerusalem Artichokes may now be lifted and stored in sand. The largest tubers should be used for culinary purposes first, as the smaller tubers are best for planting next year.

Cabbages.—Early plants may have some soil drawn up around them to steady them and protect the stems in frosty weather. If plenty of soot is available, a dusting around the plants and between the rows before drawing the soil around the plants should benefit them, and also ward off slugs.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

St. Brigid Anemones.—The plants of these sown in March or early April are now in full flower and should be protected from rain and frost to prolong the season for some time. A framework of wood over the plot, on which lights of frames can be placed, is ideal for the purpose, and mats may be hung around the sides when frost threatens.

Roses.—If any planting of Roses has to be done no favourable opportunity should be lost. The ground should be dug deeply and manured heavily, and should be of a heavy, rather than light, nature, but clay should be avoided; if planting has to be done on clay soil, quantities of opening materials should be added when preparing the ground. Owing to our uncertain climate, it is best to plant the bushes as the preparation of the soil proceeds, as if the soil is left to settle, rain may make planting impossible for weeks to come. British-grown Roses should be used every time, being infinitely superior to any imported stuff. The Briar, a deep-rooting stock, is best for strong to heavy soils, and the Manetti, a more surface-rooting stock, for light or sandy soils. In selecting the plants, it should be borne in mind that the root-system is of more importance than the top-growth; the former should be abundant and fibrous, and the latter only moderate in strength. Gross wood shows over feeding in the nursery, and such plants do not respond well to removal. When planting, make the ground firm before and after placing the bushes in position, and have the roots spread out to their full extent, and the point of union with the stock buried a few inches below the soil. Should severe frost be experienced, extra soil should be drawn up around the collars of the plants, this being the best form of protection, and not so unsightly as manure or straw.

Sweet Peas.—Autumn-sown Sweet Peas have made rapid progress owing to the mild weather, and should be stopped when they have made a few joints with at least one pair of good leaves; they should be exposed to so much air as possible while mild conditions prevail.

Cuttings.—Zonal and Regal Pelargoniums rooted in August and early September should be kept dwarf by pinching out the growing points, and they should, where possible, be potted singly into two-inch pots, using a fairly light soil for this purpose. Water should be given with great care during the winter months, a spraying on good days being generally sufficient, as artificial heat should only be given to exclude frost.

Mignonette.—As the roots begin to encircle the ball of soil shift these into pots two inches larger, using a compost of three parts good loam, one dried cow manure, and a little sand and lime rubble. Water the plants previous to shifting them, so that no water need be applied for a few days after repotting. Avoid the use of artificial heat, or weak, sickly growth may result.

Primulas.—Seeds of the many varieties of Primulas and Polyanthuses should now be sown in boxes of light, sandy soil, and placed in cold frames. Glass may be placed over them if there is danger from mice, but otherwise it is not necessary or advisable at this season. For all hardy Primulas a good freezing seems to be of service in inducing rapid germination, therefore it is perhaps best to sow these in pots and place them against a wall with a north exposure, covering them with glass to protect them from heavy rain.

INDOOR PLANTS.

PLUMIERIA BICOLOR.

THE accompanying photograph (Fig. 164) is of Plumieria bicolor. The plant flowered quite recently at Cambridge Botanic Garden, and remained in bloom for over six weeks. The flowers are nearly two inches in diameter and open successively. They are quite waxy in texture, deep yellow in the centre, shading out to pure white on the extreme edges. *F. H. Wright, University Botanic Garden, Cambridge.*

PHASEOLUS CARACALLA.

BELONGING to the same genus as the edible Runner and French Beans, Phaseolus Caracalla is of interest to the gardener by reason of its curiously-shaped flowers rather than for any utilitarian purpose. It is a native of India, but has been naturalised in other warm countries, notably in parts of California. The twining stems may attain a height of twenty feet or more. The leaflets which compose the trifoliate leaves are broadly rhombic-ovate, acuminate or pointed.

The flowers are borne in axillary racemes that exceed the leaves. They are large and fleshy, with the keel twisted in a curious snail-like manner, a character which has earned for this plant the names Snail Flower and Corkscrew Flower. Each flower is large and fleshy and of an undecided mixture of pale purple and yellow —not particularly striking in appearance but possessing a strong Stephanotis-like odour, which is an added attraction. It succeeds under warm-house conditions, and appreciates a light position close beneath the glass, and it may be treated as a perennial or as an annual.

Phaseolus Caracalla, which received a rather belated Award of Merit from the Royal Horticultural Society on October 8 (see p. 293), was first introduced to cultivation in 1690. A closely related species is P. Bertonii, from Paraguay.

LANTANA SELLOWIANA.

LANTANA Sellowiana (or Selloviana, as it is sometimes written) is named in honour of Dr. Sellow, of Potsdam, who travelled in Brazil for a number of years. It was first introduced to cultivation in 1882, and may be recommended as a fine subject for pot or basket culture, while with suitable training it develops into a good standard. It is of slender, twiggy habit, with procumbent or trailing branches. The margins of the small, ovate leaves are closely toothed.

This Lantana is very profuse and continuous in the production of its blooms, the inflorescences greatly resembling those of a Verbena. They are of an attractive rosy-lilac colour—a tone which appears particularly pleasing under artificial illumination. The individual flowers are small, but they are aggregated in long-stalked heads, each about one-and-a-half inch to two inches in diameter. The involucral bracts are less than half the length of the corolla tube. The flowers exhale a delicate perfume, but the foliage and stems emit an odour which is disagreeable to many people. This is not noticeable, however, unless the leaves are brushed against or bruised.

As with all members of the genus, the species under notice revels in hot, sunny weather, and it is only seen at its best where such conditions prevail. It is readily increased by means of cuttings taken from stock plants in the early spring. These root readily in pure sand with a bottom heat of 70° to 75°. After rooting, they should be grown on in an intermediate temperature and potted on as growth necessitates. After all danger of frost has passed, they may be planted in the open ground. If hanging baskets are desired, use several young plants, and grow them on in a sunny position in the greenhouse.

Dealers in the United States sometimes list L. Sellowiana as the Weeping or Trailing Lantana, and it is also known in the trade as L. delicatissima (which is a distinct species). A native of South America, L. Sellowiana occurs as a garden escape in the state of Florida. *T. H. E., New York, U.S.A.*

ORCHID NOTES AND GLEANINGS.

PLATYCLINIS COBBIANA.

ONE of the daintiest Orchids to bear their blooms at this season of the year in the warm Orchid-house is Platyclinis Cobbiana (syn. Dendrochilum Cobbianum).

The plant was introduced during 1881, from the Philippine Islands. The blooms are very curious and pretty, for about fifteen are borne in a pendulous raceme at the apex of a fine stalk a foot in length, and they are placed zig-zag fashion in two rows down the raceme. Individually, they are about half-an-inch in diameter, straw-yellow in colour, with a deeper orange-yellow lip. They possess a very faint, but none the less delightful, odour, somewhat like the scent of resin, and the whole inflorescence is very finely made, and sways about at the slightest movement of the air about it, like some giant catkin.

The leaves are six inches or so in length, about one-and-a-half inch broad, and contract gradually towards the base in a petiole which ends in the pseudo-bulb. These pseudo-bulbs are from one inch to two inches high

A compost composed of the fibre from peat, and Sphagnum-moss, with a little crushed charcoal to correct acidity, is all the plant requires. This Orchid should be grown in very well-drained pans hung near the roof of the house, in a light, but not sunny, position.

An abundance of water is essential during the growing period, while even during the resting season the plants should never be allowed to become dry. *F. H. Wright, University Botanic Garden, Cambridge.*

BULB GARDEN.

FRITILLARIA CITRINA.

FRITILLARIA citrina is one of the smaller-flowered species of the genus which does not attract the average plant lover but which, like some others, appeals to the rock gardener, and constitutes a pleasing feature in his garden. It is a native of Cilicia, and grows about six inches high. It has narrow leaves and bears its flowers during April and May in pairs. These may be described as "greenish-yellow," with glaucous bloom on the segments. It is by no means a showy plant, but is quite attractive in the rock garden, in groups of twelve or more.

F. citrina has proved perfectly hardy with the writer for a long series of years. It increases by offsets or seeds, but the latter, even when sown so soon as ripe, will not produce flowering plants for four or more years. Planting should be performed so soon as the bulbs can be procured, planting them at a depth of an inch, in light, rather sandy soil. I find F. citrina thrives well either in full sun or in the shade of a small, deciduous shrub. *Dumfriesshire.*

FLOWER GARDEN.

HOLLYHOCK PALLING BELLE.

THIS old variety is still one of the best pink Hollyhocks. It was brought to light by the late Mr. W. Watson, who found it some twenty years ago in a garden on the east coast. The flowers are large and fully double, and the colour is a beautiful pure pink. The usual array of flat petals at the back is, in contrast to the double centre, of a delicate, soft, shell-pink.

Attaining a height of seven or eight feet, this is a very useful variety for the herbaceous border, or for grouping among dwarf shrubs. It is most effective when massed in a bed on the lawn, with a background of trees and shrubs. In such a position the beautifully clear tone of the flowers can be fully appreciated, each bloom as soft, silky and crinkled as a double Poppy. The great objection to beds of Hollyhocks lies in the tendency for them to become bare and ragged at the base, but this defect could be remedied by "facing" the bed with a narrow band of some dwarf herbaceous or annual plant. One would naturally select a colour that would harmonise with the Hollyhock, and tall orange Antirrhinums could probably be used to good effect. A pale variety of Pentstemon would serve the purpose, but the more vividly coloured varieties should be avoided.

Although double-flowered, Hollyhock Palling Belle sets seeds, and these produce plants which are true to the parent. Hollyhocks appreciate a rich soil, and this may be secured by the addition of leaf-mould and manure to ground of poor quality. A top-dressing of old manure just as the flower spikes are being produced, is advantageous, for its value as a mulch, in addition to the manurial benefit which results.

Propagation may be effected by seeds sown outside from April to July, or by division, or by cuttings from the bases of the old plants. These may be struck in pots, plunged in a cold frame. *C.*

ROSE GARDEN.

SOME GOOD ROSES.

Now that the Rose planting season has arrived I should like to pay my tribute to the beauty of certain varieties which have done well in my garden this year.

I have a large collection of varieties, among which Gwyneth Jones is the most brilliant carmine-orange sort; occasionally the variety bears double flowers, but the majority are semi-double. This, however, does not detract from their charm. The variety is almost immune from mildew, and is very free-flowering. Lady Forteviot is somewhat unusual because when the flowers open they are golden-yellow, becoming apricot with age. In my opinion the fine form of the blooms of this variety stamps it as an exhibition flower; incidentally, its fragrance is exquisite.

One of the most brilliant orange-scarlet Roses is found in the variety Margaret McGredy, although my bushes of this are planted in extremely light soil, the colour of the blooms is not in the least affected by the sun; it is free-flowering and fairly resistant to mildew. I believe the variety Fragrance, which bears deep crimson flowers, must be one of the most sweetly-scented of modern Roses. It is worth growing on that account alone, but reference may also be made to the charm of its deep crimson blooms, and the freedom with which they are produced.

Although somewhat old as Roses go, Florence is still worthy of an honoured place, for its silvery-pink flowers, pointed in the bud, are the last word in refinement. *Geo. H. Copley, Yorks.*

HARDY FLOWER BORDER.

ACONITUM ORIENTALE.

ALTHOUGH the blue-flowered Aconitums or Monkshoods have long been established favourites in English gardens, the yellow-flowered species seem never to have been recognised to any extent, although several of them are noteworthy, and by no means to be despised where the planting of large herbaceous borders has to be carried out.

One of the best of these yellow-flowered Monkshoods is A. orientale (syn. A. ochroleucum), a native of the Caucasus, and a free-growing, herbaceous perennial which, during summer, produces from a basal mass of dark green foliage, a compact column of tall sprays of blossom up to a height of about three-and-a-half feet. The flowers are more tubular and narrow than those of the blue-flowered species, and the typical hood is not so pronounced, while the colour is a good shade of creamy-yellow. The flowers are produced plentifully and over a fairly prolonged season, and if the growths are loosely supported, as is necessary with most medium to tall herbaceous plants, a very charming subject results.

Among other yellow-flowered Aconitums, A. Lycoctonum and A. L. var. pyrenaicum may be noted specially. The former is a distinct species which attains a height of about four feet, with its dense spikes of pale sulphur-yellow flowers, while the large blooms of A. L. var. pyrenaicum are a good yellow.

If space cannot be found for these Aconitums in the herbaceous border they may, with the blue-flowered sorts, be planted in open positions in the wild garden, preferably away from the drip of trees—and there left to fend for themselves, with not unsatisfactory results. *M. W.*

TREES AND SHRUBS.

POTENTILLA FRUTICOSA VAR. BEESIANA.

The shrub sometimes listed under the above name is apparently identical with P. f. var. argentea nana. Whatever its proper name may be, it is certainly one of the most delightful of the numerous and confusing varieties of the shrubby Cinquefoil.

Growing in rather poor soil it has not exceeded a couple of feet with me, and instead of sprawling or becoming thin and gawky it has maintained a compact, well-rounded, bushy form. The leaves, which are broadly and bluntly lobed rather than deeply cut, as are those of so many, are silvered with a silky down and the big, well-rounded blossoms are a good, full-toned yellow. These blossoms, moreover, are borne in extraordinary profusion from spring to late autumn. Indeed, there is not another shrubby Potentilla in a fairly representative collection which flowers with such unwavering persistence the season through as this little bush. Cuttings strike quite readily in a cold frame, and these will often begin to bloom when only a few inches in height.

LEPTODERMIS PILOSA.

Under the above name, a shrub was sent to me some years ago, which has ever since been a very pleasing object in a quiet way throughout the summer and autumn. Whether it has any right to its label, I do not know, no books or catalogue by me (including the Kew *Hand List*) being of any assistance in identifying it. However, this is a deciduous species, and it has made several slender upright growths to a height of some five or six feet. The bark of these is a reddish-grey and they are sparsely set with short stiff twigs upon which are disposed with no less economy the opposite, ovate, grey-green, slightly hairy leaves, each with a pair of leaflets at its base. From midsummer onwards to November this shrub yields a succession of bright lavender-coloured tubular flowers half-an-inch long. These are borne in clusters at the leaf-axils of the younger wood and they have a delicious Daphne-like fragrance. The shrub appears to be quite hardy in the very dry, stony soil in which it is growing and if not particularly striking its autumn flowers and sweet scent do more than earn it a place. *North Wales.*

STRANVAESIA DAVIDIANA VAR. UNDULATA.

On November 11, 1928, an Award of Merit was granted to Stranvaesia Davidiana by the Royal Horticultural Society. This is a very beautiful shrub, and no doubt it fully deserves this distinction. The species figured prominently in the recent Autumn Shrub Show of the Society, when the brilliant red berries attracted a good deal of attention. There is, however, a variety of this species, which was introduced from China about the same time as S. Davidiana, and which is apt to be overshadowed by the latter when one is selecting shrubs which are particularly desirable. This is S. D. var. undulata, a hardy evergreen shrub which flowers profusely and produces an abundance of most attractive red berries.

In contrast to the type, the variety undulata is much less erect in habit, forming a spreading shrub, which may reach twenty feet in height, but is often considerably less than this. It has evergreen, pointed, glossy, broadly lanceolate leaves from one-and-a-quarter inch to three-and-a-half inches long and about a third as wide, often with undulated margins, and borne alternately, each on a short stalk. In June, corymbs of white flowers, each bloom half-an-inch across, are borne terminally on the branches. Typical of Rosaceae, there are five petals and numerous, rather prominent stamens. The flowers are followed by bright red berries, each about one-third-of-an-inch in diameter.

The foliage of S. undulata frequently turns crimson before leaf-fall. This autumn colouring is common also with S. Davidiana, which is quite possibly a better plant. However, the variety undulata has its uses, although it requires rather too much room for those with small gardens.

The Stranvaesias prefer a fairly light soil, but S. D. var. undulata may often be seen growing quite well in a heavy loam. Propagation may be effected by cuttings of firm, half-ripened growths, if possible, taken with a heel, and inserted over slight bottom-heat. S. D. var. undulata is, by some authorities, accorded specific rank. *L. B. C.*

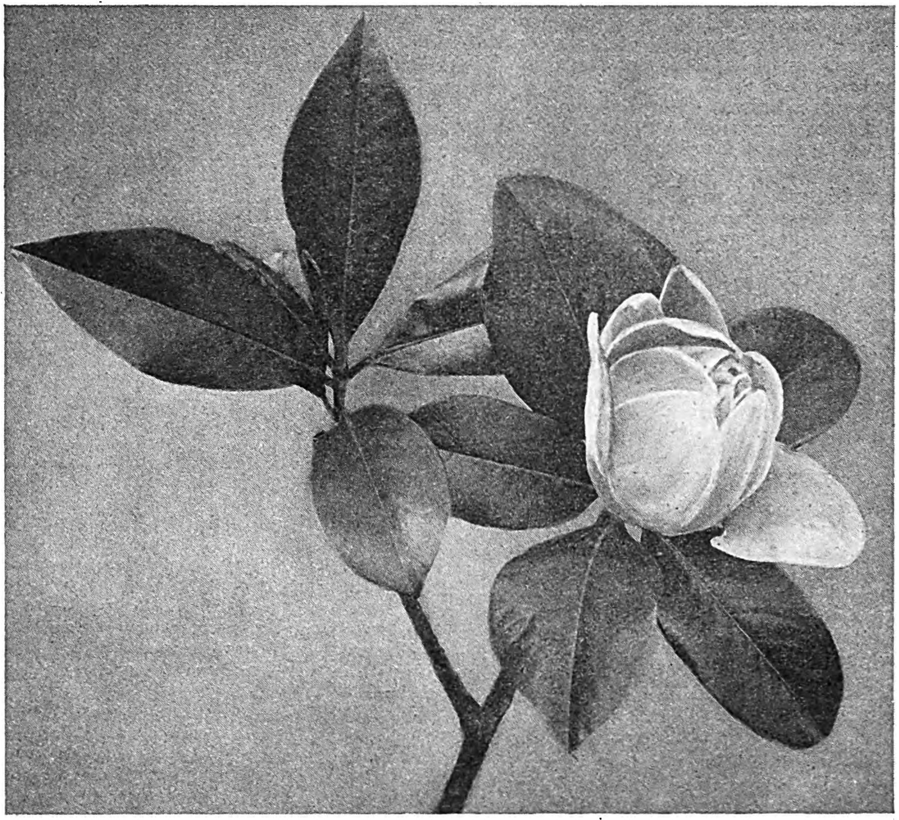

FIG. 165.—MAGNOLIA PARVIFLORA VAR. PRECOCE DES NANTES.
(see p. 365).

CEANOTHUS AZUREUS VAR. HENRI DESFOSSE.

There may be superior hybrids of its colour, but I have not seen anything in this class of Ceanothus to equal this variety in the richness of its blue and the extent of its flowering period. Grown in the open, this shrub breaks into flower quite early in summer, it is at its best about August, and continues without a break until well into autumn. The very large inflorescences branch freely, making big trusses of blossom, and the latter, being an intensely rich indigo-blue, the effect of a well-grown bush is surprisingly lovely. I do not know how this variety compares with Indigo in the matter of colour, for I have not grown the latter, but I see that Mr. Notcutt, who sent me my plant, considers Henri Desfosse the darker shade.

The Ceanothuses of this section are doubtless best when grouped and a pure white makes a fine foil for these deep blues, but I find a single bush of such a one as the subject of this note a most useful and attractive object in a mixed border.

CORONILLA GLAUCA.

If this garden is just far enough from the sea to render the growing of this delightful shrub a hazardous proceeding, the fact that it can nearly be successfully wintered does not tend to damp one's aspirations. Were the plant a less worthy species matters might be different, but Coronilla glauca is a thing of such irresistible charm that its replacement every time it succumbs is carried out with a stoical disregard of fate. However, it is only really severe frosts, such as those of the past two winters, which C. glauca cannot endure here. In a dry, gritty soil I have seen it survive frosts which have destroyed several of the Cistuses. Nor does it surrender easily. Very few shrubs that I am acquainted with can withstand bark-splitting to such an extent as this one and yet make brave efforts to carry-on.

C. glauca, a native of Spain, is a lover of rocky, limestone places. It makes a nicely rounded bush some three to four feet tall, the evergreen foliage being of a soft, glaucous green. Although it is seldom out of bloom in genial seaside places its happiest season is late summer to winter, when a well-grown specimen will be ablaze with the rich yellow of its innumerable flower clusters. Not only are these singularly attractive in combination with the bluish sheen of the leafage, but they are deliciously fragrant. This scent is so reminiscent of the "Sunny South," awakening so many memories of blue skies and bluer seas, that to encounter its subtle appeal in November is apt to develop yearnings difficult to suppress.

C. glauca strikes so readily from cuttings that one need never be without a reserve stock, and plants so raised grow so fast and flower at so early an age that they often give bloom the following season. It is also quite amenable to life in a pot, making a useful cold-house shrub which may be put outside for summer and autumn. *A. T. Johnson, Conway.*

ALPINE GARDEN.

ODONTOSPERMUM MARITIMUM.

I was interested in Mr. Arnott's account of Odontospermum maritimum (p. 303), and therefore enclose a photograph of a small bed of it (Fig. 163, p. 359) taken on October 24. The plants have given a mass of yellow flowers all the summer, and look like continuing to bloom until severe frosts occur.

In an ordinary season, this Odontospermum appears to do best in a hot, dry position on the rock garden, but, as all situations have been hot and dry this year, it has flourished wherever planted. We raise hundreds of plants annually, and find them very useful for large groups on rock work, small beds and, in some cases, use it as a change to the ordinary edging plants for large beds. I agree that Odontospermum maritimum is not too hardy, and the winter has to be a comparatively mild one to allow it to survive. Not one plant came safely through the past winter in any of our gardens here. I have, however, known several winters when plants have come through unharmed at Scarborough, especially when growing in a dry place on the rock garden, or on a wall, and, by-the-way, it makes a good wall plant. We root the cuttings in a cold frame along with Calceolarias, Pentstemons, etc., and usually plant out into summer positions straight from the cutting beds.

Since writing the above, I have heard from a gentleman who was here recently—unknown to me—asking for cuttings of this Odontospermum and telling me how much he had admired it. He wrote: "It is so fresh and clean-looking and surely hardly deserves Farrer's uncomplimentary remarks."

Given a summer such as the one just over there are certainly very few plants to equal Odontospermum maritimum for freedom and continuity of flowering. *J. Clark, Parks Superintendent, Scarborough.*

LINARIA ALPINA.

Linaria alpina needs no introduction to the gardening public, although it certainly deserves a word of praise occasionally. This tiny Snapdragon (one hesitates over that awful name —Toadflax) is an old favourite which will always be grown, especially by those who make their annual pilgrimage to the mountains, and see it growing under natural conditions.

Wherever one goes in the Alps, L. alpina keeps cropping up, preferring the granite formations, but not objecting to calcareous localities, and seeking out the barren, stony slopes, at fair elevations. For instance, there is one spot (and there must be many similar places) close to a primitive slate quarry, where its thin, grey, sparsely-leaved stems meander in and out among the rubble of a shaly and almost precipitous slope, here and there peeping out at the world with those delightful little flowers which Mr. Elliott so aptly describes as "miniature violet Snapdragons with eggy lips."

It would, indeed, be a stroke of luck if one could have such a rough slide of rubble in the garden, with water flowing beneath, and there grow L. alpina as it loves to grow, not with the flat, green luxuriousness of the pot-grown plant, but with thready, grey stems that are covered by falling scree and then come up again unexpectedly with a flower or two here and there. However, all we can do for the alpine Linaria in our gardens is to grow it in the moraine, or else in a gritty mixture in some carefully selected pocket where moisture can collect and drain away almost immediately through the sharpest of drainage. Flowering all through the summer months from June to the end of September, or even later, given warm, sunny days, L. alpina will often reward the gardener by reproducing itself from self-sown seeds. Otherwise, it is to be raised (with varying success) from seeds, or else bought as plants, which usually look remarkably healthy in pots.

There is a white form of which the writer has heard but not seen, although he has had the acquaintance of varieties which were reputed to be white, and were of a dull bluish or pinky-whiteness of no particular merit. However, no white form, even if it be a true albino, can ever equal the type, and is only to be regarded as a rarity of interest—certainly not as an improvement.

L. alpina cannot be stated to have a long life under garden conditions, even although it receives annual top-dressings of gritty material, and this, perhaps, will help to keep the name before us in the trade lists. Every year L. alpina appears in catalogues, and this will be so as long as rock gardens and alpine enthusiasts exist. *L. B. C.*

SAPONARIA CAESPITOSA.

Although, from a decorative point of view, the deservedly popular Saponaria ocymoides ranks foremost in its genus as a rock garden subject, being invaluable for clothing rocks and for draping miniature cliffs, there are other members of the genus which deserve recognition of their charms, notably S. caespitosa, which will provide a bright splash of colour during mid- and late summer and which, like S. ocymoides, asks no special favours to induce it to flourish.

It is hardy and a good perennial and requires no more than an open, sunny spot and well-drained, sandy soil, with an occasional top-dressing of open compost worked among its growths.

S. caespitosa is of neat habit, being neither rampant nor straggling in growth. It forms a close carpet of smooth, narrow, dark green foliage, above which are borne on strong stems six inches or so high, dense heads of rosy-pink blooms, further colour being provided by the red-tinted calyces and stems. S. caespitosa does not rank among the unobtainable, for it is listed by several nurserymen, and is easily increased. *M. W.*

NOTES FROM WISLEY.

There are certain trees and shrubs which, no matter what the climatic conditions may have been throughout the year, take on their bright autumnal garb with unfailing regularity, and as Wisley is well-furnished with such, the gardens now present a very attractive and interesting appearance, even although many subjects have not coloured so well as is expected of them.

Amelanchier canadensis never fails to colour well in the autumn, and the fine standard of this ornamental tree (valued also for its very charming, although fleeting blossom) situated at the foot of the rock garden, has been a grand study in burnished gold, while close to it the large mound of Forsythia has become deeply shaded with purple.

The rock garden possesses many interesting features, including several specimen bushes of various Cydonias, all heavily laden with golden-yellow fruits, and several dwarf Cotoneasters with large crops of berries in shades of red. Polygonum vaccinifolium ignores the lateness of the season, and is at present draping the rocks with numerous spikes of rosy-pink, which show to advantage against the close mat of dark, glossy green foliage, and the bed of Parochetus communis—the dark blue-flowered form—in the gulley which feeds the bog garden, is still lit up by the dainty Pea-like flowers. Gentiana Farreri has finished for the season, but the luxuriant beds of G. sino-ornata are still sheets of rich blue, while an attractive shrub on the rock garden is Abelia grandiflora, whose remaining pale pink blossoms blend well with the red-tinted calyces of those that have gone before to produce a most charming effect. Stranvaesia Davidiana var. undulata, of which there is a large specimen on the border of the bog garden, is a mass of rich red fruits.

Vivid autumn colouring is found along the path leading from the Rose walk—where, incidentally, the dwarf Polyantha Rose Crimson Orleans continues to flower gaily—to the rock garden, for here the collection of Japanese Maples presents a rich study in shades of yellow, bronze, orange and flaming scarlet, while beneath them Cyclamen neapolitanum is naturalised, so that the mossy mound is dappled with rosy-pink. From this path a good view is obtained of Liquidambar styraciflua, which rises above the Rhododendrons in the woodland and is a pyramid of rich colour ranging from orange to deep scarlet. This Sweet Gum colours well in the autumn every year but, curiously, another specimen some little distance away but in the heart of the woodland, fails to do so.

On the margins of the ponds at the foot of the alpine meadow the large clumps of Osmunda regalis have changed from light green to light brown, in keeping with the general autumnal effect, while the large crimson fruits and purplish undersides of the foliage of the American Cranberry, Oxycoccus macrocarpus, in the Sphagnum-bed by the Wistaria bridge, are also very striking.

In the wild garden, Cyclamen neapolitanum is again in evidence, and the foliage of isolated clumps of Azaleas presents delightful shades of yellow and orange, although the large bank of Azaleas is practically devoid of autumn colouring. The invaluable Pernettya mucronata which is naturalised in part of the wild garden, is fruiting freely, its fruits ranging in colour from pure white and pale pink to deep crimson, and also varying considerably in size, while Gaultheria procumbens, an invaluable ground-cover, has its close carpets of dark green, purple-tinted foliage spotted with scarlet berries.

Near the Umbrella Pine, Sciadopitys verticillata, several Vacciniums are richly coloured, notably V. corymbosum, with vivid orange-scarlet autumn foliage, and V. virgatum, whose rich green foliage is lightened by the red tints of the younger growths. A plant worthy of note in this quarter, as being permanently attractive, is Pieris japonica var. variegata, the evergreen leaves of which are edged with cream and show well against the dark background of tall Rhododendrons; I do not remember ever having seen this specimen in flower, but it is a handsome foliage plant. Near to it, Hydrangea paniculata carries its numerous cream-coloured inflorescences, lightly tinged with pink, but the first frost of moderate severity will destroy them.

In that section of the wild garden known as the American garden, the Enkianthuses and Vacciniums are the chief sources of attraction at the present time. The foliage of Enkianthus japonicus is now vivid orange-scarlet, that of E. campanulatum being of a lighter, more yellow tone. Here, the several shapely bushes of Vaccinium virgatum are fruiting heavily, the fruits being blackish-crimson when ripe, and conspicuous among the tinted foliage. Vaccinium pennsylvanicum is also very striking, forming low, spreading mounds of verdant green, lightly shaded with red. The slender-pointed leaves of Leucothoë Catesbaei, carried on graceful, wand-like growths, are now heavily suffused with purple.

Seven Acres presents an animated scene, for here are to be found many bright-foliaged and richly-berried shrubs, chief among which are the Barberries. The Wisley hybrid Barberries which are planted *en masse* on a mound near the pond, and also on both sides of the broad path leading to the river walk, present a fascinating spectacle of vivid colouring in subtle shades of orange and red, while a great variety in form of fruit and the mode of bearing them is also noticeable. In the huge shrub border are many evergreen and deciduous, red-fruited species of Berberis, especially noteworthy among the former being B. replicata, which, besides being a first-class early-flowering shrub of moderate height, and compact, bushy growth, in autumn changes the colour of its oldest leaves to brilliant orange-scarlet, and also loads its branches with dark purple fruits. B. Jamesiana is barren of fruits this season, but its foliage is richly coloured, while B. dictyophylla also presents itself as a grand subject for autumn effect; it has orange-scarlet-tinted foliage and crimson fruits, and the young growths and leaves are covered with waxy "bloom." B. Prattii and B. ruscifolia are two very striking red-fruited species, the slender, oval fruits of the latter species being borne in pendent clusters, while the crimson growths of B. yunnanensis make this species an outstanding subject in the shrub borders at Wisley. The numerous Cotoneasters, except the invaluable C. rotundifolia, are not fruiting so well this year, but two yellow-fruited Pyracanthas are worthy of note, one being an unnamed seedling with every branch closely packed with small, light yellow fruits—food in plenty for many birds during the next few weeks—and the other, P. angustifolia, of ungainly habit, but generous in the production of its rather large, rich yellow fruits.

Several Pyruses are carrying heavy crops, notably P. purpurea, with crimson fruits; the P. Niedzwetzkyana seedlings, and Pyrus Eleyi, dark crimson. Among fruiting Thorns, Crataegus coccinea, heavily laden with scarlet fruits; C. orientalis, whose large, orange fruits show to advantage among the downy, grey foliage, and C. orientalis var. sanguinea, with crimson fruits, are worthy of attention.

Among the many shrubs and trees whose leaves have assumed rich colouring, mention may be made of Parrotia persica, which never fails to "pass out" in a blaze of orange and scarlet; Pyrus ovoidea, whose every leaf is rich crimson; Spiraea prunifolia, now a broad column of deep bronze; the low-growing Pyrus melanocarpus, with red and purple leaves, and Rhus Cotinus var. atropurpurea, which has changed its foliage very effectively from purple to light shades of yellow, orange and red. Although Quercus coccinea, Knaphill variety, has not yet attained its full autumn beauty, it is already a landmark in Seven Acres, while the crimson stems of Cornus sanguinea, on the pond margin, are also beginning to show to advantage.

Finally, although no blossom is now to be seen in the Heath garden, except a few belated, scattered blooms of Daboecia polifolia, the general effect in this beautifully conceived garden is very intriguing, consisting now of a delightful blending of subdued colouring—the purple hue of the large drifts of Daboecia, the golden-brown, faded flowers of Erica vagans, and the light green of the developing inflorescences of Erica darleyensis and other winter-flowering Heaths, combining to produce a most harmonious effect. *F.*

NOTES FROM GLASNEVIN.

ARISTOLOCHIA GIGANTEA.

THIS handsome stove climber (Fig. 166) was collected in Brazil by the celebrated traveller Von Martius, and was described by him. It is remarkable for the large size of its flowers, the expanded limb being at least nine inches wide and as much in length, divided into two equal, rounded lobes. The colour is reddish-purple when the flowers are fresh. Unlike many of the species, the flowers are pleasantly fragrant. The leaves are heart-shaped, the largest over three inches long and two-and-a-half inches wide. Although lacking the "tail" of A. gigas, and others of the large-flowered section, A. gigantea is more attractive in colour and has the additional attribute of sweet scent. Our plant was acquired from Messrs. L. R. Russell, Ltd., of Richmond. Propagation may be effected by cuttings.

COLCHICUM AUTUMNALE VAR. FLORE PLENO.

Colchicums, for some reason, are not so popular as Crocuses. This is due, no doubt, to the unsightly appearance of the dying leaves at a season when fresh growth is rampant in the garden. It is necessary to plant them where the leaves will not be an eyesore, and there are often secluded corners to be found quite suitable. The variety under notice flowers in October, and this year was particularly good. The flowers are quite double but not clumsy, the colour is lilac, and although not so good in this respect as C. speciosum var. rubrum it is, nevertheless, pleasing so late in the year. The dwarf, single-flowered variety, C. autumnale var. atropurpureum, is deep crimson when fully open, and is the richest coloured of all the Colchicums. A species received from the late Walter Siehe flowered in September. It was sent by him as C. candidum, and is somewhat like C. autumnale, but dwarfer when in flower. The flowers are white, with a faint pink suffusion. When the corms have increased this promises to be an acquisition. Although believed to be a synonym of C. laetum, Siehe's plant seems different, and must await definite determination.

MAGNOLIA GRANDIFLORA.

As a rule this species is more notable as an evergreen than as a flowering shrub. It is fairly often met with growing against a sunny wall, where its handsome leaves and occasional creamy-white flowers are admired. In the open it forms a low, round-headed tree at Glasnevin, and although handsome in foliage, rarely flowers. A native of North America, from North Carolina to Louisiana, it is stated to be found there in the forests, and according to Loudon, grows only in cool, shady places in deep, fertile soil composed of brown mould. In this country, however, it would seem to require all the sun available, and only after a very hot summer such as we have just experienced, does it produce its large, fragrant flowers. Introduced to England apparently about 1737, quite a number of alleged varieties have arisen, among them one known as M. grandiflora var. lanceolata, or exoniensis, reputed to have originated at Exeter. Loudon enumerates several, while Mr. Bean mentions but three, pointing out the impossibility of distinguishing between many of the so-called varieties raised, no doubt, from seeds. Many fine specimens are to be seen in the warmer countries of eastern Europe, and there seeds are produced freely. Two varieties have flowered at Glasnevin this October, viz., M. g. var. Précoce des Nantes (Fig. 165), and M. g. var. ferruginea; the latter, however, scarcely justifies is varietal name, since the rusty-coloured tomentum on the undersurface of the leaves is conspicuous only while they are quite young.

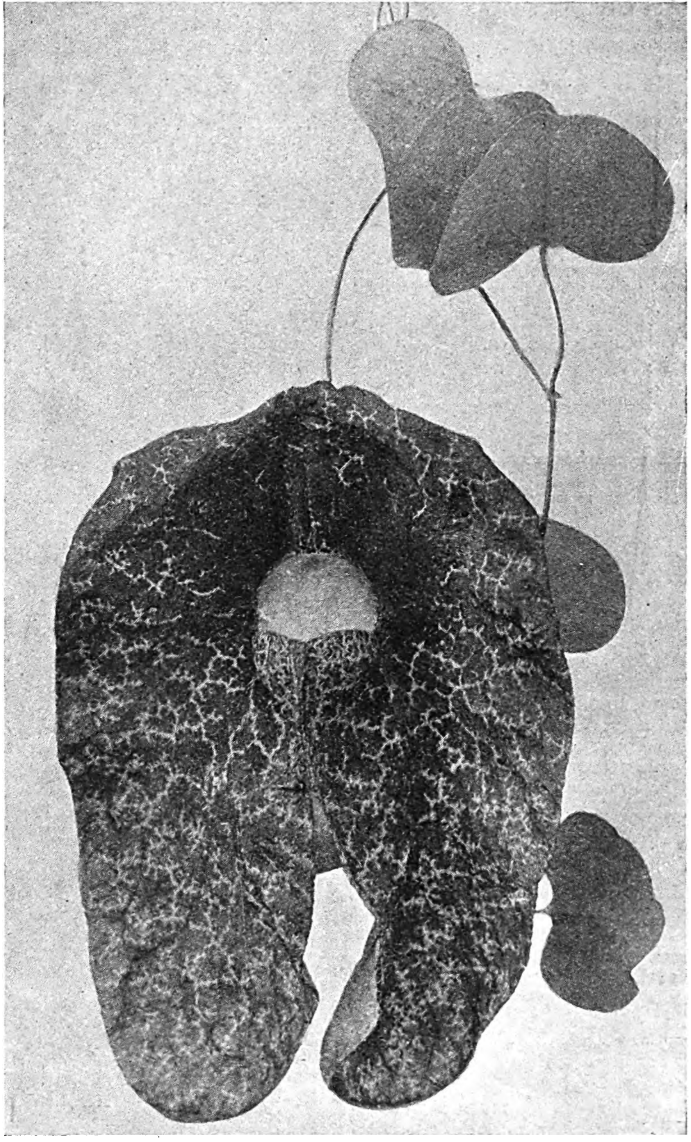

FIG. 166.—ARISTOLOCHIA GIGANTEA.

KNIPHOFIA NELSONII.

The genus Kniphofia, still often called Tritoma, is an exclusively African one, extending from the Cape to Abyssinia. The species are remarkably diverse in habit and vary much in hardiness. All require a deep, very well drained soil and suffer at Glasnevin more from wet winters than from frost. Severe and prolonged frost, however, such as was experienced in Britain last winter, is fatal to most species if unprotected. The species under notice is one of the smaller growers, forming tufts of narrow leaves, the slender flower spikes arising from among them in late summer and autumn. An established clump will produce a large number of spikes of coral-red flowers of great beauty. As the total height when in flower is about two to two-and-a-half feet, the plant may be used in positions where the larger-growing species like K. Uvaria (aloides) would be unsuitable. *J. W. Besant, Glasnevin.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXIV.—The Last Round.

On October 15 the weather was as bad as ever. The rain began in the small hours, and when we awoke, it was blowing hard and pouring pitilessly. The coolies, who had been flooded out of their leaf shelters, were shivering with cold, being wet through; in any event they were too scantily clad to be able to keep warm in such a wind, all their fires having been put out. We held a council. Buttercup was in favour of putting off our departure for another day; and I was lothe to abandon Polon—for obviously we could not even go up to the cave on such a day. But the coolies said that if we did not go down immediately, they would not come back for us again. This was more than I dared risk, so with a sinking feeling, I gave the order to retire to Meiliang camp in the valley.

On the way down I collected a number of Rhododendron seeds, including the pale 'Aureum' and the gamboge 'Boothii,' otherwise known as the 'Gamboothii.' In spite of the atrocious weather, the scarlet 'Neriiflorum' was making pathetic efforts to flower again, and several trusses had opened a rheumy red eye. On the lower ridge many Orchids were flowering. The narrow-leafed Cymbidium was in full bloom, hanging out long spikes of purple-spotted, white flowers; the rock Pleione—probably P. maculata—had purple flowers; there were two or three species of Coelogyne, and the yellow Cirrhopetalum previously mentioned. Dendrobium fimbriatum and the big Cymbidium were over—the latter flowers again in April. On the wooded ridge and especially on the steep open face between 6,000 and 4,000 feet, a number of shrubs were in flower, including Luculia gratissima, an Oxyspora, Osbeckia chinensis, Astilbe, and a pale yellow Scrophulariad I had never seen before—perhaps a species of Lindenbergia. The rain continued all day, but it was quite warm in the valley, even in our wet clothes.

October 16, after a shaky start, turned out fine. We dried our clothes and tents in the hot sunshine, and got all the seeds laid out. I prepared to move, and on the following day, accompanied by Hubble and the Gam, set out up the valley for Kaso. It was a cloudless morning, roasting hot, and although we carried very light loads, the overgrown path proved wearisome. We had food for five days, a blanket, and a few warm clothes for the night. We reached Tablekon at one o'clock, and went on across the ravine to the next village, whence the path goes up the ridge to Kaso. Having been refused admission to two huts, I selected the most convenient and planted myself there for the night; no one turned us out.

During the night it began to rain, and by morning the mountains were swathed in mist, and a steady drizzle was falling. I decided to wait a day, and in the afternoon went to the gorge where I had found a solitary bush of the golden Abelia in May, and collected all the fruits there were of it, besides Rhododendron dendricola and the dwarf, bush Hypericum.

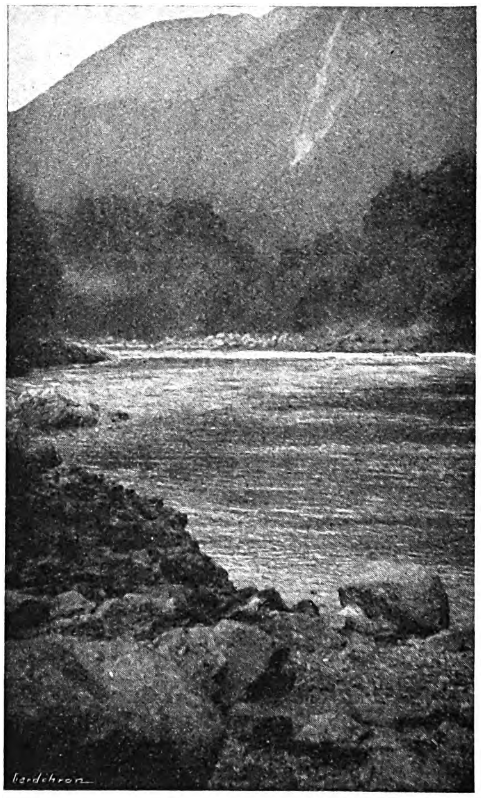

FIG. 167.—THE LOHIT RIVER.

The first event next day was the irruption at an early hour of three noisy young bucks into our hut. I told Hubble to order them out, but he was afraid to do anything, as they were cursing the householder for taking me in. Poor man, he had no choice! I pushed two of the Mishmis out and left the third. I was afrad they might draw their knives, as they were very angry, and the last thing I wanted, when we were so near our goal, was a scrimmage. All things considered, I was glad to get away safely from that village, where I was distinctly unpopular.

We started up the ridge at eight, and the rain began immediately and continued all day. At noon, we reached our old camp, and went on to the big cave for lunch. This cave was large and dry, affording excellent shelter, but it was a long way from the alpine ridge, and I decided to spend the night higher up. So we went on so far as Isopyrum Cliff, where there was a small hollow under the rock; before we got there the Mishmis became frightened at the cold—our altitude now was 11,000 feet—and had snow fallen they would have bolted. But it just continued to rain and rain; we were wet to the skin from pushing through the drenched bushes, and the wind was cold. This alcove at Isopyrum Cliff was a most miserable place. Rain from the sloping roof dripped on to us from a dozen crannies, the wind blew straight in and everything was soaked; there was not even room to lie down at full length, so narrow was the ledge. While the Mishmis were cutting wood and lighting a fire, I collected all the seeds I could find of the cream 'Sikkimensis' Primula, the 'Auriculata,' and P. septemloba, the yield of each being scanty; the capsules of the last named had nearly all been bitten off. Then I went after Rhododendron 'Rock Rose,' but here again there was scarcely one capsule where two flowers had been, and I got very few seeds. 'Rock Rose' grew on a very steep face, which was now slippery with mud and water spread over it in a film; and while searching for capsules my foot slipped, and I shot down the face at terrific speed, tearing my hands badly, but coming to rest without serious injury. We turned in early. It rained all night and by morning the rain had turned to snow. We hardly slept at all, but about three o'clock the fire went out, and it grew bitterly cold. We rose at dawn, very stiff—a grey dawn with the snow slopes of Kaso looming faintly through the thick mist. Quickly I prepared myself for the climb—thick clothing, nailed boots, mittens, and dark goggles. It was useless for the Mishmis to accompany me as they would have been frozen to death, so I told them to pack up and take everything down to the big cave, where I intended to sleep the night; and at eight o'clock I started up the ridge. Immediately after starting I got into the snow, which smothered the Bamboos and Rhododendrons. However, I made excellent progress up the ridge—there was no incentive to loiter, and presently I came to the carmine 'Barbatum' Rhododendron, and secured a few capsules. The next thing wanted was the speckled Nomocharis from Iris Cliff, but to my chagrin, I could not find a single plant of it on the north face. Then I tried the south face, which was more difficult, as the escarpment was high; and here I saw half-a-dozen plants, which produced two caspules between them! And with that I had to be content as I had already wasted a lot of time here; I also collected seeds of the bright red 'Sanguineum' Rhododendron, but the seeds afterwards got mixed with some other species.

In another hour I reached the alpine ridge, having collected seeds of the glowing 'Haematodes' Rhododendron on the way; and now the snow grew rapidly deeper, especially on the steep, sheltered face, where the Rhododendrons were; I collected a little 'Saluenense' and the wash-leather-leafed bush with speckled yellow flowers; and having ascended to close on 13,000 feet, prepared for the worst. A severe snowstorm was raging up here, the wind coming from the north. After digging the first 'Rose of Kaso' out of the snow, and finding that it had not set one capsule of seed, I took stock of the position. It was as clear as day that all the dwarf Rhododendrons must be abandoned; that is to say, the pink 'Anthopogon,' R. repens, 'Rock Rose,' R. campylogynum, and the pink 'Campylogynum,' which was probably R. pumilum. It was also clear that there was no hope of getting Meconopsis paniculata, or the other Meconopsis, or the 'Soldanelloid' Primula, or the 'Muscarioid' Primulas. So far, nothing very serious except the loss of the pink 'Anthopogon.' The question was, could I get 'Rose of Kaso,' the most lovely of all the smaller species? Some large patches of it grew on the very steep face below the ridge, which overhung it.

The long slope was as smooth as glazed china under its mantle of snow, and even the cairn I had built to mark 'Rose of Kaso' was buried. Here was a poser; but if I could cross the gulley, it might be possible to find the plant. However, it was first necessary to traverse across the face, since I could not get down from above; and what had been easy enough in June was distinctly dangerous in October. But the risk must be

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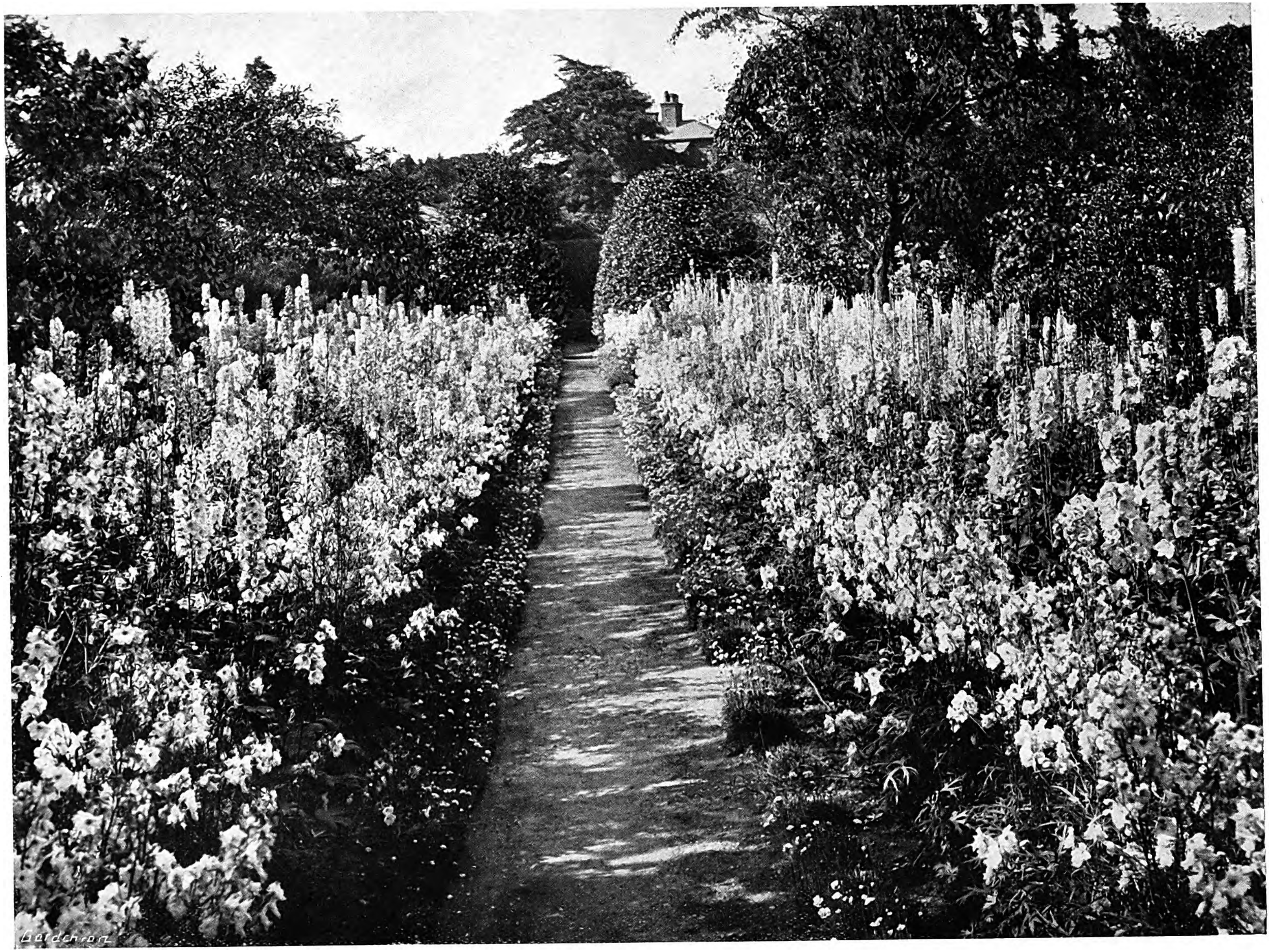
* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 14, 28; October 12 and 26, 1929.



DELPHINIUM BORDERS AT THE RAFT, SALE.

run. Leaving the ridge, I scrambled through the snow-bound scrub, and started across that smooth and shining face, kicking steps in the frozen crust as I went, and moving cautiously. Half-way across the worst happened; my foot slipped, and the next second I was flying down the slope in a smother of snow. By a miracle I came to rest fifty feet below, but my nerve was shaken. However, it was impossible to go back, so I went on, and was presently clawing my way up the opposite side of the gulley to where the snow rested on a foundation of scrub Rhododendron. This was pretty safe, and I started climbing more confidently up the steep slope, sinking knee-deep into the soft snow. It seemed quite impossible to find anything here, until suddenly I stood right on a small plant of 'Rose of Kaso' which yielded two capsules; but although I excavated all around the site, I could find no more.

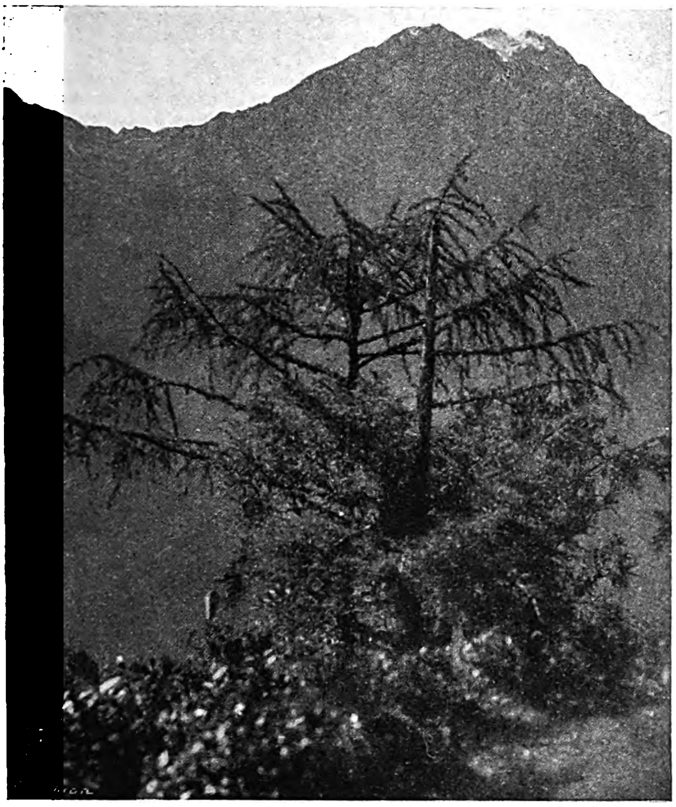


FIG. 168.—LARIX GRIFFITHII.

It became necessary to reach the ridge now at all costs; in the first place, it was late, and in the second, it was bitterly cold standing and digging in the snow, and my fingers were already beginning to show symptoms of frost-bite. I struggled up the slope, climbed the cliff, and at last threw myself down in the snow on the crest of the ridge, exhausted and thoroughly scared. On the cliff I found some plants of the pink Anthopogon, but they had not set seeds. From this point to the summit of Kaso everything was buried under three or four feet of snow, with drifts ten feet deep, and it was both useless and dangerous to prosecute the search further. Turning to the west, I saw that the clouds had broken and were rapidly thinning away; the sun shone out, and all around ranges of snowy mountains were revealed. Soon after dark, I reached the cave, to find a good fire burning and everything snug—a great improvement on the previous night.

After a cold and brilliant night, the 21st was gloriously fine. On the way down the ridge, I collected one truss of the fourth and last 'Barbatum' Rhododendron. Marching all day we reached a hut at dusk, only about three miles from Meiliang camp, and making an early start on the 22nd, I got there in time for breakfast, to find that Buttercup had made all arrangements for going down the valley next day, if necessary. *F. Kingdon Ward.*

APPLES ON METZ PARADISE STOCK.

It is well known that Apple and most other fruit trees, not coming true from seeds or easily from cuttings, require to be grafted on a root or "stock" as it is called. In the early days of fruit culture this stock was usually raised from a seed, such as the Crab or wild Apple, or from the wild Pear for Pears. Very early in history it was found that certain Apples would root from cuttings, and when these were grafted, the graft, and consequently the resulting tree, grew less vigorously and devoted its attention to fruiting rather than to growth.

In Apples, this free-rooting, dwarfing stock was at first thought to be the Apple from the Garden of Eden, and thus the name Paradise was attached to it, and in time all Apples which could be raised from cuttings or layers were also called Paradise, so that the name, first used for a particular variety, became the name of a family—the Paradise Apple stocks.

As their number increased growers realised that there was difference in the dwarfing powers. Some, such as the old French Paradise, gave a tree so small that, except for purposes of ornament, its use was discontinued. At the other extreme were the strong varieties which produced a large tree, so that the choice of the right stock was seen to be of some importance for garden purposes.

The old French Paradise, long used in France, to produce the smallest garden trees, has certain disadvantages, its liability to disease being the worst. The introduction of another strongly-dwarfing Apple stock was therefore desirable, and when the famous nurserymen of Metz, Messrs. Simon Louis Frères, introduced the Metz Paradise stock it was soon tried in France and Germany and approved. Thanks to the well-known trials at the East Malling Research Station, it has been brought prominently to the notice of British growers, and its capacities of dwarfing and early cropping have attracted much attention. Its good points are patent; early production, great freedom in making fruit buds, and early ripening of fruits, all of which are of good size and well developed, make it *par excellence* the stock for small gardens and for the production of choice fruits.

It is indeed a remarkable sight to see a row of cordons, three years old, say, of that impenitent late fruiter, Blenheim Pippin, bearing at this early age almost with the freedom of an Early Victoria. Such a row of cordons, when six feet high, each producing its two dozen or more fruits, would be a feature in any garden, and as it would take less room than a row of Raspberries, it should be possible for many gardeners to have this second string to their bow for the production of the best dessert Apples.

Having worked a large number of varieties on this stock for some years, I find it most suitable for all the choice dessert Apples, especially those of firmer flesh and wood. Soft-fleshed varieties, such as James Grieve, and still more, the soft-wooded Codlins such as Grenadier, Lord Grosvenor, Early Victoria and the like, I find apt to blow out as maidens and two-year-old trees; this, however, is only the nurseryman's trouble.

Another defect from the nurseryman's point of view, however, is that the stock roots slowly and usually requires to stand two years before it can be budded. I do not find, as some do, that budding is less successful than grafting; given good conditions a good "take" of buds can be obtained. The chief criticism of the stock from the gardener's point of view is its lop-sided root-system, which causes it to blow over very easily, and it should always be very firmly staked, as the authorities at East Malling always advise.

After two dry summers, I find that it has a tendency to throw off fruits of some varieties before they have fully coloured. This year, for instance, fruits of Cutler Grieve, that brilliantly scarlet variety, all fell before they had attained anything like their full colour. It would be well, therefore, to proceed carefully in the south in its use for such Apples as Beauty of Bath and James Grieve which have this distressing habit of dropping their fruits before they are ready to be gathered. For all mid and late season Apples, for which I have now used it as a stock, numbering some fifty distinct varieties, I can strongly recommend its use for the smaller forms of trees and we owe a debt both to East Malling for bringing it prominently before English growers, and to the discoverer, Mr. Dieudonné of Metz, who, chancing upon the seedling in a vineyard at Montigny in 1828 had the happy thought of trying it as a stock, and so enabling us to replace the old French Paradise by a successor, which if not the ideal stock, is a great advance on its predecessor, the old French Paradise.

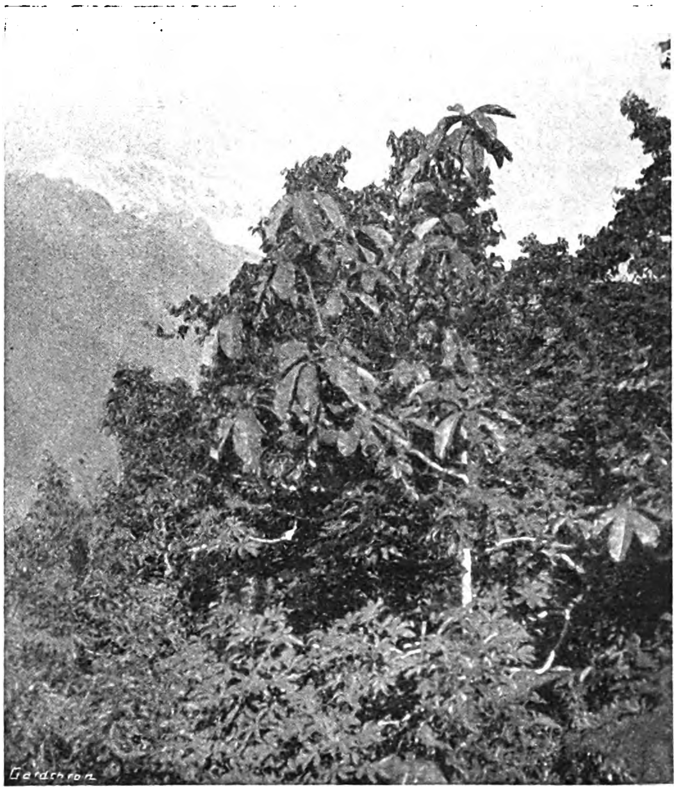


FIG. 169.—MAGNOLIA ROSTRATA.

Of the Apples which I have tested upon it, the following list contains those which can be recommended for cordon or dwarf bushes:—Adams's Pearmain, Allington Pippin, Belle de Boskoop, Blenheim Pippin, Braddick's Nonpareil, Christmas Pearmain, Claygate Pearmain, Cox's Orange Pippin, Duke of Devonshire, Egremont Russet, Ellison's Orange, Golden Delicious, Gravenstein, King of the Pippins, Lady Sudeley, Lord Hindlip, Mother, Orleans Reinette, Pitmaston Pine-Apple, Reinette du Canada, Ribston Pippin, Rival, Rosemary Russet, Sanspareil, S. Edmund's Russet, Superb, and Worcester Pearmain. *Edward A. Bunyard.*

PLANT VARIATIONS.

(*Continued from p.* 324.)

SPORTS, CHIMAERAS, VARIEGATION AND MUTATIONS.

Chimaeras.

Perhaps one of the most fundamental conceptions arising out of genetical work in plants has been that of the chimaera.

A chimaera may be defined as a mixture of distinct tissues in the same shoot. On this conception one may have either sectorial or periclinal chimaeras.

Sectorial chimaeras consist of longitudinal stripes of distinct tissue arranged in no regular pattern. They are very unstable, and depend for their perpetuation on the disposition of the growing point. Examples are to be found in many variegated plants, and those which sometimes produce variously coloured and striped petals on the same plant, *e.g.*, some Roses, Pelargoniums, Azaleas, Fuchsias and Chrysanthemums.

Periclinal chimaeras consist of a skin of one tissue enclosing a central core of another tissue which is genetically distinct. They are less liable to vary than sectorial chimaeras. Terminal and axillary buds on a periclinal stem perpetuate the tissue arrangement of the stem on which they are borne. The skin is generally uniform over the whole plant, but may be of different thicknesses in different periclinal chimaeras.

Periclinal and sectorial chimaeras which occur in plants raised from seeds, and not resulting from grafting, are Azalea, Bouvardia, Pelargonium (Zonal, Regal and some of the scented-leaved varieties), Phlox decussata, Rosa, etc., and also in many plants having variegated leaves.

The dual structure of some of these has been demonstrated by means of root-cuttings. A few examples may be cited here, viz., the Regal or Show Pelargonium Madame Thibaut has given several sports, one of which, having pure white flowers, known as Pearl, when propagated by means of root-cuttings will give plants bearing red flowers similar to Madame Thibaut. When the root-sport is again grown from root-cuttings it will come true. This has also been found true with other Regal and scented-leaved varieties of Pelargoniums, and also with Bouvardias.

A Zonal Pelargonium known as Double New Life (Fig. 170), is stated to have originated as a sport from Vesuvius. The flowers are double, but greatly reduced in size, and consist of a large number of small, narrow, red, white and striped, petal-like growths. This plant is imperfect as regards seed production unless it be crossed with pollen from the single-flowered form of Vesuvius, when the offspring will produce flowers indistinguishable from that variety. P. Double New Life will frequently produce normal, red, single flowers (Fig. 171) among the double ones on some of the trusses, and when grown from root-cuttings, the plant will give normal single, red flowers.

Another Zonal Pelargonium, Flower of Spring, a variegated variety, having white margins (Fig. 172), *i.e.*, white skin, enclosing a green core (white-over-green), frequently produces completely green-leaved shoots, and will also give a reversed form of variegation, wherein the core of the plant is white, enclosed in a green skin (green-over-white). When the typical Flower of Spring is propagated from root-cuttings it will produce green-leaved plants, because the core is green.

If the reversed form, *i.e.*, green-over-white, is grown from root-cuttings it produces white-leaved shoots, because the core of the plant is white. These white-leaved shoots will only live for a short time, owing to the absence of chlorophyll.

Root-cuttings raised from the entirely green-leaved plants will be wholly green. This behaviour of variegated-leaved plants holds good for many varieties that have been tested here. For other examples see under 'Variegation."

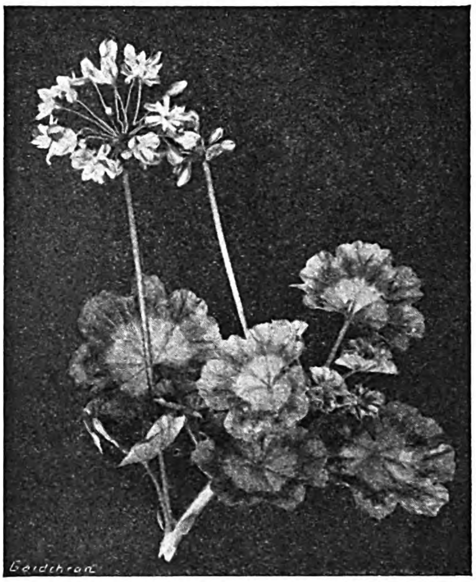


FIG. 170.—PELARGONIUM DOUBLE NEW LIFE.

Somatic segregation of chimaeras, both from root-cuttings and as bud sports, is worthy of special note.

It is well-known to horticulturists that certain plants, propagated from buds formed directly on the roots, do not come true to the parental form. The buds formed on roots have a deeply seated or endogenous origin; hence, in a periclinal chimaera, they consist solely of the tissue composing the core of the plant.

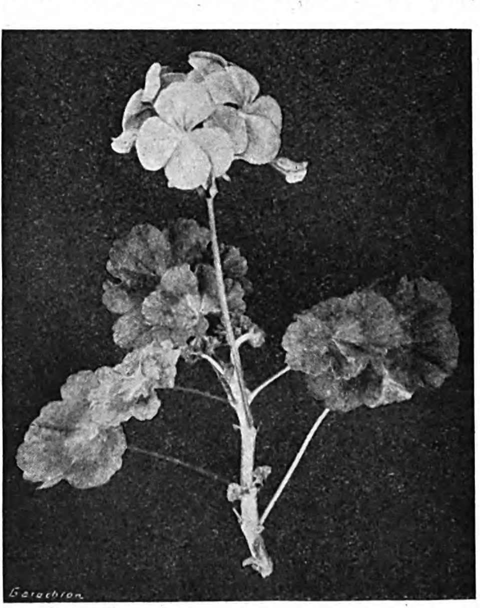


FIG. 171.—PELARGONIUM DOUBLE NEW LIFE WITH SINGLE FLOWERS.

It may be of interest to describe the method by which plants are propagated by root-cuttings, showing the changes that have been brought about in this way.

Quite a number of plants are capable of being propagated by means of root-cuttings, but by no means any or every plant, nor do all plants grown from roots give something different to the parent; in fact, the majority come true. At Merton we have tried many hundreds of species and varieties fairly representative of all the flowering plants and only a small percentage of those tried was successful.

The writer, after many trials and by several methods, found that by cutting back a plant nearly close to the level of the soil and inverting the whole root system in a pot of soil, exposing the roots to light and air, a number of plants, which formerly resisted all attempts at root propagation, now produced buds. It is possible that the period of the year and the state of the plant, *i.e.*, whether it is in active growth or approaching the season of its rest, or just before the plant commences to renew its growth, and also the degree of humidity and the temperature of the propagating house or frame, have some effect on the success or failure of this method of propagation.

Many garden varieties of Pelargonium, Bouvardia, Phlox decussata, etc., have originated in this way. Such sports are a source of much confusion of names in gardens, as the same kind of root-sport has made its appearance in different gardens and at different times. Such sports have been given names to distinguish them from existing varieties, hence there are more names than distinct sorts. *A. Hosking, Garden Superintendent, John Innes Horticultural Institute, Merton, Surrey.*

(*To be continued*).

THE GENUS PRIMULA.

(*Continued from p.* 345.)

sinensis (Lindl.). Chinese P. (Sinensis).

This deservedly popular plant, which needs no description, was introduced into this country in 1820 by Captain Rawes, who obtained it from the gardens of Canton, where it had apparently been cultivated for a great number of years. It has never been collected in a wild state, and is thought by some authorities to be a hybrid of unknown parentage. P. calciphila, Hutch., was at first thought to be the wild form, but is now considered a valid and distinct species. P. sinensis, Lindl., which, to follow the strict rules of priority in nomenclature, should be known as P. praenitens Ker.-Gawl. is figured under that name in the *Botanical Register* for 1821, t. 539, also in the *Botanical Magazine* for 1825, t. 2564, as P. sinensis, Lindl., to which readers are referred for good coloured illustrations of the plant as first imported.

sinodenticulata (Balf. f.). Chinese Toothed P. (Denticulata).

A robust sub-species of P. denticulata, with a thick rootstock clothed with the dry remains of the previous seasons' foliage. The plant forms scaly, whitish resting buds which eventually turn rusty-brown, and from these the rosettes of oblong, egg-shaped-oblong or oblong-spathulate, blunt, membranous leaves develop. They measure about three inches in length at flowering time and when quite mature are six inches or more long and taper to a strap-shaped stalk; margins slightly reflexed, sinuate and at times obscurely toothed; both surfaces covered with very minute down, the principal veins being red. Flower stem robust, about nine inches tall, densely coated with yellow meal towards the tip and bearing a globose umbel of numerous, purple, white-eyed blossoms on rigid, more or less mealy stalks about a quarter-of-an-inch long. Corolla about five-eighths-of-an-inch long, with egg-shaped, deeply divided segments; tube cylindrical, nearly twice as long as the calyx. Flowers in May.

Grows in moist alpine pastures on the Tali range, in western Yunnan, western China.

Culture: As for P. denticulata.

SINOLISTERI (Balf. f). Lister's Chinese P.
(Obconica).

This pretty, deciduous perennial is a sub-species of P. obconica. It has a woody, branching rootstock clothed with the dried remains of previous seasons' foliage. The numerous tufts of glaucous leaves have nearly circular blades three-quarters- to one-and-a-half inch across, blunt at the tip, heart-shaped at the base, borne on slender, rigid, downy stalks one-and-a-half inch to two-and-a-half inches long; margins lobed, lobes pointed or blunt, furnished with sharp teeth; minutely hairy above, downy below, hairs non-irritant. Flower stem two to eight inches tall, slender, downy, bearing an umbel of two to eight white, pale rose, or lavender-rose, green-eyed, fragrant blossoms. Corolla about three-quarters-of-an-inch across, with heart-shaped, notched lobes; tube about three-eighths-of-an-inch long with a ring in the mouth. Flowers in May and June. Illust. in *Jour. Roy. Hort. Soc.*, Vol. XXXIX, 1913. Introduced in 1909.

Grows in dry, rocky pastures or on the moist ledges of shady cliffs on the Tali range, in north-western Yunnan, at 7,000 to 10,000 feet above sea-level.

Culture: As for P. Forbesii.

SINOMOLLIS (Balf. f.). Chinese Downy P.
(Cortusoides).

A handsome, herbaceous, perennial sub-species of P. cinerascens, Fr., with a fleshy rootstock covered with scales. The leaves are produced in a rather large tuft and have elliptic-heart-shaped or sub-rotund-heart-shaped blades about four inches across, on densely hairy stalks about two inches long, dilated at the base; margins sub-revolute, with somewhat sinuate lobes furnished with curved teeth; upper surface shortly downy; underside intricately veined and hairy. Flower stems numerous, up to twenty inches tall, slender, downy, often decumbent after flowering, bearing numerous superposed umbels of four to six fragrant blossoms of a bright rose colour with a yellow eye, or bright magenta-rose with a greenish-white eye; they are sub-oblique, on horizontal, thread-like stalks about half-an-inch long. Corolla about three-quarters-of-an-inch across, segments broadly heart-shaped, deeply cleft, lobes entire; tube about three-eighths-of-an-inch long, cylindrical, with a ten-lobed ring in the mouth. Illust. in *Jour. Roy. Hort. Soc.*, Vol. XXXIX, 1913. Flowers in April and May.

Grows in somewhat dry situations in evergreen and deciduous forests, on the western side of the Salween valley, in Yunnan, western China, at 7,000 to 8,000 feet above sea-level. Introduced in 1913.

Var. alba, Balf. f., has almost white flowers with a deep rose-coloured eye; grows in pasture lands on hills to the east of Tengyueh, in Yunnan, at about 6,000 feet.

Culture: As for P. mollis.

SINONIVALIS (Balf. f.). Chinese Snowy P.
(Nivales).

A handsome, deciduous perennial species, with short, scaly resting buds coated with white meal, from which tufts of thin, Papyrus-like leaves about six inches long are produced; the narrowly egg-shaped blades are usually rounded at the tip and taper to an indistinct stalk; margins edged with small, regular, rounded teeth; upper surface more or less smooth, underside sparsely clothed with minute, meal-producing, glandular hairs. Flower stem six to nine inches tall, stout, bearing a many-flowered umbel of bluish-purple blossoms on short, slender stalks. Flowers in July.

Grows in moist, open, alpine pastures on the mountains of the Mekong-Salween divide, in western, north-western Yunnan.

Culture: Good rich loam in a moist, open spot should suit it.

SINOPLANTAGINEA (Balf. f.). Chinese Plantain P.
(Nivales).

A handsome, deciduous, perennial species with large, reddish, membranous, scale-like resting buds about two inches long, which are persistent and sheath the base of the tuft of lance-shaped, pointed leaves, which taper to membranously winged stalks; margins furnished with obscure, rounded teeth; upper surface more or less smooth, underside slightly coated with yellow meal. Flower stem six to twelve inches tall, stout, sparsely coated with golden-yellow meal and bearing an umbel of several fragrant, deep bluish-purple blossoms; the bracts are also deep purple. Flowers in June and July. In cultivation in 1925.

Grows in open, moist, stony alpine pastures on mountains east of Yunging, in south-western Szechuan, at 14,000 feet above sea-level; also in north-western Yunnan, on Beimashan.

Culture: Grow it in good, rich, somewhat heavy, fibrous loam in an open spot well supplied with water when the plant is in growth.

SINOPURPUREA (Balf. f.). Chinese Purple P.
(Nivales).

A very beautiful, perennial species with a rosette of broadly lance-shaped, rather pointed, thin leaves from four to eight inches long, gradually tapering into winged stalks; margins furnished with sharp, curved teeth; upper surface smooth, underside coated with yellow meal. Flower stems stout, four to fifteen inches tall, bearing an umbel of six to twenty deep violet or deep rose-lavender blossoms on slightly mealy, curved stalks; at times a second umbel or whorl of a fewer flowers is produced below the terminal one in strong specimens. Corolla about one-and-a-quarter inch across, with spreading, broadly elliptic or rounded lobes; tube funnel-shaped upwards, cylindrical below, about half-an-inch long.

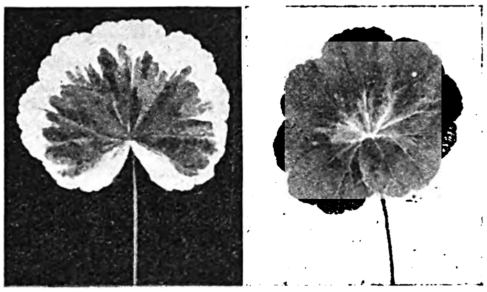


FIG. 172.—PELARGONIUM FLOWER OF SPRING
Showing marginal and central variegation.

Grows in damp, open situations, usually in rich soil, on the mountains of Yunnan, western China; also in south-eastern Tibet at 14,000 to 15,000 feet above sea-level. Introduced in 1915. *Bot. Mag.*, t. 8,777.

Culture: Plant it in good fibrous loam, leaf-soil and sand in a cool, damp spot; it is not a long-lived plant, but is quite hardy.

SIPHONANTHA (W. W. Sm.). Siphon-flowered P.
(Soldanelloidae).

A pretty, somewhat tufted, perennial species with broadly lance-shaped, blunt or rather pointed, thin leaves, one-and-a-half inch to two-and-a-half inches long, narrowed to a short, broad, winged stalk half-an-inch to one inch long; margins furnished with irregular sinuate teeth edged with minute hairs; both surfaces green, covered with minute, stiff, meal-producing, glandular hairs; underside with the mid-rib and nerves furnished with long, white hairs. Flower stem eight to ten inches tall, covered with minute hairs and coated with meal at the tip only; the pale violet, deflexed blossoms are borne in an umbel of four to five and are everywhere covered with minute glandular hairs. Corolla about five-eighths-of-an-inch long, elongate, with short, narrowly-oblong segments furnished with two or three sharp, irregular teeth at the tip; tube cylindrical below, inflated upwards, about one-eighth of-an-inch long.

Grows on slopes and banks, usually fully exposed, in the Scinghku valley in north-eastern Upper Burma, at about 11,000 feet above sea-level.

Culture: It should succeed in good, gritty, friable loam in a damp spot, with protection from wet in winter.

SMITHIANA (Craib). Smith's P.
(Candelabra).

A handsome, deciduous, perennial species with a rosette or tuft of thin, papery, oblong, lance-shaped or rarely broadly lance-shaped leaves, rounded at the tip, tapering to a more or less distinctly winged stalk, in all from three to five inches long; margins furnished with sharp teeth; both surfaces usually more or less smooth, underside at times sparsely coated with yellow meal. Flower stem stout, smooth, up to nearly two feet in height, bearing one or two superposed umbels of yellow blossoms on slender stalks about half-an-inch long. Corolla three-quarters-of-an-inch to one inch across, with five heart-shaped lobes; tube about three-eighths-of-an-inch long with a ring in the throat. In cultivation in 1920.

Grows in damp situations in the Chumbi valley, in the Sikkim Himalayas.

Culture: Good rich, fibrous loam, in an open, sunny spot, well supplied with water when the plant is in growth, are the conditions indicated.

SOLDANELLOIDES (Watt). Soldanella P.
(Soldanelloidae).

A very beautiful, perennial species of minute proportions, best treated as a biennial in cultivation. It produces rosettes of oval, blunt, deeply pinnatifid leaves, wedge-shaped at the base, with rather long stalks, in all from a quarter- to half-an-inch long; both surfaces smooth, non-mealy. Flower stem slender, hair-like, three-quarters to one-and-a-half inch tall, bearing a solitary, nodding, white blossom about five-eighths-of-an-inch across. Corolla broadly funnel-shaped, with short, coarsely-toothed lobes; tube dilated upwards, about as long as the calyx. *Pax. Prim.*, Fig. 24 c.

Grows in damp, rocky places in the Kankola Pass, in Sikkim, also at Patangla, in Bhutan, eastern Himalayas, at 15,000 feet above sea-level, frequently flowering at the edge of melting snow.

Culture: As for P. Reidii.

SONCHIFOLIA (Franch.). Sow Thistle-leaved P.
(Petiolaris-Sonchifolia).

A very beautiful, perennial species whose flower stems rise from a number of large, broadly oval scales which are covered with rich orange-coloured meal. The Papyrus-like leaves have oblong, or egg-shaped-oblong, blunt blades from six to eight inches long, slightly narrowed at the base; margins furnished with sinuate, sharp, broadly triangular teeth or lobes; both surfaces dotted with elevated glands and at times sparsely mealy towards the base. Flower stem three to nine inches tall, stout, smooth, or covered with minute scales, or at times sparsely mealy, bearing an umbel of four to ten rather crowded, erect, bright blue or deep indigo-coloured blossoms with a pale yellowish-white or yellow eye. Corolla nearly one-and-a-quarter inch across, with broadly egg-shaped, shallowly notched, irregularly and sharply-toothed lobes; tube about five-eighths-of-an-inch long, dilated upwards. Flowers from May to July. *Gard. Chron.*, 1910, Vol. XLVII, p. 58, Fig. 35.

Grows in moist, alpine meadows, at times in shade, frequently flowering at the edge of the melting show in the Tali and Lichiang ranges of Yunnan, western China, at 11,000 to 14,000 feet above sea-level.

Culture: Fibrous peat and gritty, calcareous loam, well supplied with moisture when in growth, with protection from damp in winter, are the conditions indicated. *A. W. Darnell.*

(*To be continued*).

GRADING OF WARE POTATOS.

There is, as yet, no standard definition of a marketable sample of ware Potatos. In view of the variations which occur in practice in regard to the proportion of diseased or damaged tubers, and of earth and other extraneous matter, in commercial samples, it is desirable that a standard definition should be provided in the interests of producers, distributors and consumers.

The Minister of Agriculture and Fisheries has, therefore, made draft regulations[*] under the Agricultural Produce (Grading and Marketing) Act, 1928, prescribing and defining grade designations for voluntary use in the trade. These have been demonstrated by the Ministry of Agriculture during the past year at a number of agricultural shows throughout the country. They provide for variations in the size *i.e.*, minimum diameter of the tubers as between one grade and another, but not for a common standard of dressing as regards disease, damage dirt, and so forth.

Owing partly to differences in public taste, and partly to the difficulty in defining cooking quality, no provision is being made, at the moment, for the use of the National Mark on graded consignments. It is believed, however, that even without the National Mark, the existence of a statutory standard of dressing should be as beneficial to the Potato industry of this country as it has proved to be elsewhere, and that, in time, such a standard will work its way into the trade on its merits.

At present good and bad samples are marketed under the same description. By using the statutory grade designations, growers will be able to guarantee their standard of dressing, which should go some way towards securing them from the competition of poorly dressed lots. Merchants, both wholesale and retail, and public or private institutions, accustomed to buying large supplies, should find the grades helpful.

The extensive use of these grades in conjunction with the excellent quality of this year's crop would probably help to stimulate the demand for home-grown Potatos, and would be an obvious and proper departure from the present condition of informality and uncertainty. Appended is a copy of the schedule embodying the draft grade designations and definitions.

SCHEDULE FOR GRADING WARE POTATOS.

Grade Designation.	DEFINITIONS OF QUALITY.						
	General.	Applicable to single tubers.	Applicable to Quantities.				
			Tolerances.				
		Size (Minimum diameter).	Conformity to Variety, etc.	Undersize or Oversize.	Disease, Damage, etc.*	Earth and/or Extraneous Matter.	Maximum aggregate of all defects under Cols. 5, 6 and 7.
1	2	3	4	5	6	7	8
E. and W. No. 1. Size.	Reasonably clean, healthy Potatos, free from serious defect and suitable for human consumption.	†‡1¾ in.	At least 95 per cent., by count, must conform to the variety as, and when, specified, and to the type of soil on which grown, where such is declared.	Not more than 3 per cent. of the total weight may pass through a riddle or sieve having a square mesh of the minimum size specified (in Col. 3) for the grade, and included in this, not more than 0·5 per cent. of the total weight may pass through a 1-in. mesh. Potatos which exceed 3¼ ins. in their smallest diameter shall be excluded. Otherwise in regard to size, the Potatos shall be as grown.	Not more than 3 per cent. of the total weight may consist of appreciably diseased, damaged, or unsightly Potatos, and included in this amount not more than 0·25% of the total weight may be obviously affected with soft rot.	Not more than 4 per cent. may be present in Potatos loaded up to November 1 in the year of harvesting and 2 per cent. after that date; the percentage to be calculated on the net weight of screened Potatos.	5 per cent. of the total weight.
E. and W. No. 2 Size.		1⅝ in.					
E. and W. No. 3 Size.		1½ in.					

* (i) Any disease or defect, the presence of which may be established by cutting open the Potato, shall be taken into account, and Potatos having worm- or slug-holes penetrating into the flesh shall be regarded as damaged.
(ii) Potatos affected by superficial disease or damage shall not be regarded as diseased or damaged unless more than one-tenth of the surface is so affected.
(iii) A Potato shall only be regarded as being obviously affected with the soft rot if, at the time of inspection, it is squashy and/or the surface is at some part distinctly broken or wet owing to disease.

† When the Potatos have been passed over a riddle of greater mesh than 1¾ in., the minimum size may, at the seller's discretion, be appended to the grade name, *e.g.*, "Special (2 in.)."

‡ As measured clear within the bounds of the mesh.

HOME CORRESPONDENCE.

Bees and Fruits.—I noted with interest the observations of your correspondent, Mr. C. Morris, in your issue of October 19, p. 309, relating to damage to Peaches and Plums by bees during the past dry summer. Here, at Swanley, the damage to the Apple and Pear crops has been extensive, particularly on the variety James Grieve. Numerous hives are kept in our plantations, and throughout the drought, which was unbroken here for months, the bees seemed unable to obtain enough moisture, even when water was provided in trays, and they early turned their attentions to Pears, Plums, and in particular, to Apples. However, as the bee cannot bite like the wasp, the Apple skin had first to be punctured before the bees could feed, and so far as I could perceive this initial injury was caused by earwigs which infested the trees and fruits. The fact that earwigs are usually found in the stalk cavity or between a pair of fruits would account for the bees attacking the stalk end of the Apple first. Many bees were found in the fruits or in the boxes days after the fruits were picked, and merely returned again to the feast when disturbed by grading operations. Jays have been troublesome, and no doubt the bees followed them in many cases. Wasps have been almost entirely absent, and it is the first season I remember in which Plum picking was completed without their greedy and often uncomfortable attentions. *Eric W. Hobbes, Horticultural College, Swanley, Kent.*

——I was very interested in the observations of Mr. C. Morris on the bees attacking fruits (p. 309), as this year I have had the same experience for the first time, especially with Plums and Peaches. When going to gather Victoria Plums I found very few wasps, but a great number of honey bees, while Peaches on an outside wall were badly attacked by bees, which completely spoiled a great many fruits, but hardly a wasp was to be seen. We have been very free from wasps, having found (and destroyed) only one nest, whereas last year I destroyed over eighty nests. What I would like to know is, if it had been an ordinary season for wasps, would they have kept bees away from the fruits? *F. Akers, Hatchlands, Guildford.*

Odontospermum maritimum.—(*Gard. Chron.* October 10, 1929).—I brought this plant back from Majorica, where it covers the low rocks on the shore near Palma. We have always kept it going, although it is a difficult plant to propagate, and is not hardy. Recently, I saw a much stronger form under the name of Asterias maritimus, growing in the rock work in front of Mr. Cheal's house in his nursery at Crawley. This plant, which is much larger in all its parts, is very easy to propagate, and survives most winters. It flowers from April until November, and the great, golden-yellow flowers, which lie flat on the ground, keep open, unlike Gazanias, in the dullest weather. To-day, October 19, six plants are carrying twenty-four flowers. *William Lawrence, Burford.*

Dahlias.—Among the several sections of Dahlias now recognised by florists, few, if any, have grown so much in favour with the general public as the Star and the Collarette groups. And this favouritism is not to be wondered at, seeing how handsomely these two classes lend themselves to decorative work—both in the garden and in the home. Popularity is, however, by no means confined to these Dahlias, for each type has so progressed in all its features under the hand of the specialist as to have its own particular admirers. The improved habit of the Dahlia is quite remarkable, the best varieties no longer hiding their flowers among the foliage, nor yet hanging down their heads. More varied and richer colourings in the flowers greet us in every class, while a vastly freer-flowering nature is found in all sections. There remains, however, one very weak spot in the make-up of the Dahlia plant. It too easily falls a prey to the first frost—which so often comes when the plants are making a beautiful display. Would that the leafage and flower of this easily-grown, good subject were less susceptible to such early disaster! Few sights are sadder to the garden lover than a blackened Dahlia border in early September, while no sight is more pleasing than the same plants gay with flowers in mid-October, as they were this year. *C. Turner.*

Grape Classes at R.H.S. Autumn Fruit Show.—As an old exhibitor and judge of Grapes, I am not quite in agreement with *Sussex Exhibitor* in his suggested restrictions in Grape classes at the R.H.S. Fruit Show (p. 331). Certainly, any restriction other than what has already been in operation would be difficult to make under existing rules. Exhibitors of four varieties of Grapes (Class 3) may not exhibit in Class 4 for two varieties. A similar restriction is in force both at Shrewsbury and Southport. But I am strongly of the opinion that all classes for distinct varieties should be open, for all competitors meet on equal ground, as there is certainly no logical reason why an exhibitor who can only stage one or possibly two varieties may not be as able a cultivator as one who can stage half-a-dozen varieties. Certainly visitors would like to see each particular variety staged in its best possible form. Further, a large garden with a considerable staff does not always mean that a great variety of Grapes is cultivated. May I cite my own case. Here we have a fairly large kitchen garden with a considerable staff—because we have a large household to supply—but we rely on two varieties of Grapes for so long a period as possible because these are what my employer appreciates most. When, some years ago, I had charge of a much smaller garden, with a considerably smaller staff, I grew and exhibited the best Grapes I ever staged; possibly this was because, with less to look after, I could give more direct personal attention to their requirements. My advice to *Sussex Exhibitor* is to put his best efforts into the cultivation of the variety or varieties which are likely to be at their best in October and when, someday, he wins, he will be much more satisfied than if some new restrictions were enforced to make his task easier. May I suggest that *Sussex Exhibitor* turns to the vegetable section of the schedule to which he refers, and notes the restrictions only apply to the collections; all single dishes for kinds or varieties of vegetables are open, even to the exhibitor of the largest collections. *W. H. W., Worcester.*

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[*] Agricultural Produce (Grading) (Potatos) Regulations, 1929. Obtainable from H.M. Stationery Office, Adastral House, Kingsway, London, W.C.2.

The Need of Education for Gardeners.—A remarkably thoughtful and helpful communication appeared in your issue of October 26 under the above title from the pen of Mr. M. G. Kennedy-Bell. The subject has interested me for a very long number of years. I well remember when I started to learn the practical side of my business, I lodged with a foreman nursery-gardener who bought every Saturday *The Gardeners' Chronicle* and *The Garden*. That took 1s. per week out of his hard-earned wage, which would not be more than £2 per week. I had the use of these journals and formed a taste for gardening literature which remains to this day. I state that case as an example, and I wish it were more followed to-day, but things have changed since then. In those days gardeners were "passing rich" on forty shillings a week. If in private service with that wage, and a free house, and no rates and taxes, with coal and light, and sometimes milk, with fruit and vegetables and Potatos in season and in reason, he was mighty well off; not to mention a new suit of clothes once a year, or its equivalent from his nurserymen. Such gifts were legal in those days, but not now. How is it to-day? It would require nearly three times that old salary to make a man feel as well off—but the jobs are not there to-day. Since 1914, large-scale private gardening has disappeared to a great extent. In the summer of 1915, I remember the late Mr. Arthur W. Sutton told me how hardly his firm and others who were favoured with the business of great establishments had suffered. I will not mention the figures he gave, they more than proved his case. Since the war ended the position has not much improved. Hundreds, perhaps a thousand or more, private gardens have been let as market gardens, and the expenditure on most others has been largely cut down, therefore even the modest, although comfortable inducements of long ago to become gardeners do not exist to-day. The war has changed everything and everyone's outlook. When I started my gardening career we had to work from 6 a.m. to 6 p.m. every day, except Saturdays, and it was a great concession to cease at four or five on that day. I remember when most other tradesmen got a fifty-one hours week gardeners had no concession except the Saturday afternoon from two o'clock. Hours are better to-day, but wages are still low, and the resultant real trouble is that the right sort of lads, unless they have a bent, or love, for gardening will not enter it. A friend of mine who was brought up on a small farm in the north of Scotland, and who now occupies a University Chair, had a beginning like my own and he recently told me he had been to visit his native village. All the young men and lads now had bicycles, and so soon as work was done and they had got some food and changed clothing, they were off to the adjoining town, three or four evenings a week, and invariably for the whole Saturday afternoon and evening—so different from his early experiences. We agreed this was a war result, and the hands of the clock would not be turned back. Country life does not to-day appeal to the average modern lad, neither here nor abroad. Australia has some 6,000,000 of a population, half of whom are crowded into the cities! Of the lads who now enter gardening in any of its numerous branches, I estimate ten per cent. do so because they are interested—the ardour of a few of these cools after a trial, but that loss is made up by a few of the ninety per cent. who get interested. The problem of education in horticulture, therefore, really becomes one for those who make up my ten per cent., and here I thoroughly agree with Mr. Kennedy-Bell. These lads will grasp the opportunities presented to them and will get more and more interested in the literature, science and practice of their profession, and will get the plums that are going. They will not all rise to the very top, but the positions at the top will be filled by some of them. My friend and neighbour, Professor Wright Smith, tells me that there are always openings, a few at home and numbers abroad, for young, keen men with the right training and experience. On my own desk at this moment I have letters asking if I can recommend for positions in the United States three young men trained in plant breeding and who have a good practical background. I am afraid I cannot. The practical background required is that experience which enables one to exercise a real flair for the good things produced by cross-fertilisation, which will appeal to the public and be a commercial success. I know I run a great danger of being castigated by some of my most intimate friends for postulating this, but I write of what I know and testify of what I have seen. I can illustrate this by an example from the Potato world, the application of which is the same in the floral world. In this century the two great, successful raisers of new Potatos have been Findlay and Mackelvie. Mr. Findlay had, and Mr. Mackelvie has, for he is fortunately still with us, a sort of second sight, otherwise a power of discernment necessary to pick out from tens of thousands of seedlings the units which are to make good, and to suit a world waiting for them. Some seem to be endowed by nature with this power of selection, others acquire it by long years of training and experience, and that, I think, is what my American friends call "a background." *William Cuthbertson, Duddingston, Edinburgh.*

Lonicera nitida.—In his article on Lonicera nitida, *L. C.* (p. 322) is certainly at fault in describing this evergreen, shrubby Honeysuckle as suitable for growing in mild localities only. Last winter severely tested the hardiness of many shrubs, but a L. nitida hedge here came through 28° of frost unscathed, and hundreds of thousands of this species, growing in one of the most exposed positions it is possible to imagine, were also untouched. He also writes of it attaining an ultimate height of three to four feet in this country, but plants have been measured up to nearly seven feet! Undoubtedly L. nitida is the ideal shrub for a close evergreen hedge, and in a very few years will be planted in preference to Ligustrum ovalifolium. Ligustrum Prattii, introduced by Wilson in 1908, has also been tried as a hedge plant, but it has not the graceful appearance of Lonicera nitida, nor is it so fast growing, and after seeing the two plants growing side by side it is easy to perceive why the latter is so deservedly popular. *H. A. P., Brampton, Hunts.*

Mr. Allan Falconer.—Many readers of *The Gardeners' Chronicle* will learn with surprise and some regret, that Mr. A. Falconer, who has been for several years the keen grower at the Cheadle Royal Hospital, is relinquishing that post to take up the position of Parks Superintendent to the Ashton-under-Lyme and Stalybridge Corporations on November 16. Every one of his friends will wish him every success in his new sphere of operations, and will regret that, leaving Cheadle, he will be a possible loss to competitive horticulture in the show tents. Mr. Falconer will be remembered by the many as a clever and consistent exhibitor at numerous big shows, in which undertaking he always proved himself a keen enthusiast and excellent sportsman, whether in winning or in defeat. I sincerely hope that he will still be seen at many shows, and if not as a competitor, then I hope that every use will be made of his services as a keen and competent judge. *E. B.*

Clematis integrifolia.—I was very interested to read the remarks on this plant by Mr. S. Arnott, on page 303, and especially with regard to C. integrifolia var. Durandii. A few weeks ago I was travelling in Holland, and while in the Boskoop district I happened to go into the flower auction market there, and I was particularly struck by some particularly fine bunches of cut Clematis flowers. The bunches consisted of about five sprays, and the blossoms were of a very attractive shade of purplish-violet, and slightly smaller in size than those of C. Jackmanii. The bidding for this subject was very keen, and some good prices were realised. Upon making inquiries, I was told that the variety was Clematis integrifolia var. Durandii; it is certainly an excellent cut flower subject and much in demand on the Continent. It is chiefly used for table decoration, and large consignments are sent daily from Boskoop and district to Rotterdam, Amsterdam and Brussels. I was told that a wholesale flower grower in the Boskoop district found this one subject so remunerative that he grew it to the exclusion of all else! *K. Therkildsen, Southport.*

Good Dessert Plums for Market Growers.—*Market Grower*, in his excellent notes on page 310, refers to the great demand for good dessert Plums, and then writes that: "The true dessert Plums are all stated to be shy bearers." This idea—which seems to prevail among many growers—I believe to be entirely erroneous, and is probably due to the behaviour of isolated trees, or blocks, planted without due regard to providing suitable pollenators. I venture, therefore, to name a few varieties which I have found from experience to be heavy and regular croppers. I planted Jefferson twenty years ago in a mixed plantation, thinking that it might possibly succeed as a standard, but not being very sanguine on that point. To my surprise Jefferson has proved to be the most successful variety in that plantation. It has cropped very heavily and regularly, and high prices have been obtained for all the fruits. During recent years, I have recommended this variety to many market growers, and in each case the results have been good. Oullins Golden is another Plum of fine quality and appearance which makes a sturdy tree, and crops heavily. If packed in punnets or 4-lb. chips, high prices are always obtained for the fruits. Count Althann's Gage is a fine reddish-purple fruited-variety with a free stone. It does not appear to be well-known, or it would certainly be more widely cultivated. It produces heavy and regular crops, and is worthy of the attention of all market growers. Denniston's Superb produces fruits of medium size, is a prodigious cropper, and seldom fails. It makes a fine tree, and succeeds in most districts. Heron, which has attractive fruits, is usually catalogued as a culinary variety, but is really excellent for dessert, being richer in flavour than Victoria. It crops well and comes in just after Czar. Growers in the Evesham district think highly of this variety. The following new varieties raised by Messrs. Laxton Bros., should certainly be tested on a small scale by all market growers on the look-out for profitable dessert Plums:—Goldfinch (Early Transparent Gage × Jefferson), Bountiful (Red Magnum Bonum × Victoria), Delicious (Coe's Golden Drop × Pond's Seedling), and Utility (Jefferson × Peach Plum). *H. Dunkin, Warwick.*

FOREIGN CORRESPONDENCE.

TOMATO HETEROSIS.

I take the liberty of sending you a few observations concerning Tomato Heterosis, listed in Benary's seed catalogue, and quoted in your issue of October 19, p. 311. This Tomato has been tried this summer by various growers in the neighbourhood, both in and out-of-doors, and has, in some respects, fulfilled the advantages claimed by the firm of Benary.

The individual Heterosis Tomato plant is a very strong grower and heavy bearer. Five trusses have been generally left, and each of these has carried from twenty-five to twenty-eight medium-sized but very regular fruits. However, its maturity is decidedly late, being about a fortnight later than the variety Best of All. Indoors, it has proved somewhat disappointing, for the fruits are too small to be of real market value, and too late; but this could, perhaps, be improved under better and more skilful cultivation. As for the yield, which has been generally very large this year, Tomato Heterosis surpasses the other best croppers by about ten to fifteen per cent. Some seeds have been saved for experimental purposes next year. *A. R. Lugeon, Ecole d'Agriculture, Morges, Switzerland.*

ASTER ERICOIDES.

Of the several Asters which are native hereabouts, A. ericoides is one of the most distinct. It occurs plentifully, both in open situations and in semi-shade, always preferring rather dry soil. In suitable situations it forms shapely, bushy specimens up to three feet in height. The stems are slender and paniculately branched, with the small, white flowers arranged in racemose manner along the upper side of the stem-branches. The leaves are slender, those of the stems being narrowly linear and acute. Individual flower heads rarely exceed three-quarters-of-an-inch in diameter. Several varieties of A. ericoides have been described, including pilosus, platyphyllus, depauperatus, Randii and parviceps, for as with many other members of the genus, A. ericoides has a strong tendency to variation.

N. Taylor, who is responsible for the treatment accorded to the genus Aster in Bailey's *Standard Cyclopedia of Horticulture* does not appear to regard this species as of any particular merit as a garden plant, for of it he states: "Not very showy. Useful for naturalising in open, dry situations." Nicholson's *Dictionary of Gardening* describes Aster ericoides as "A very pretty species," so in the words of the showman, "You pay your money and take your choice."

I recall that at Kew A. ericoides was effectively used to form a front row to the border of Asters which was planted along the path between the T-range and the rock garden.

ASTER SKYLANDS QUEEN.

A new hardy Aster exhibited at the Greenwich (New York) fall flower show, by Mr. T. Winskill, of Skylands Farm, Sterlington, New York, received much favourable comment from professional gardeners, and it is certainly a worthy addition to the many fine varieties which have been raised during comparatively recent years. Although most of the parent species are natives of North America, we in the New World have, in the past, depended almost entirely upon European raisers for improved horticultural varieties of these fine hardy plants. As a matter of fact, the hardy Asters have been almost neglected here as garden plants until comparatively recent years, but their worth is now being recognised, and they are fast gaining popularity.

Aster Skylands Queen is of the Novi-belgii section, but is dwarfer than most of the Novi-belgii varieties, for it does not exceed a height of two feet, and is of a branched, bushy habit with rather large, glossy foliage. During mid-September it bears a profusion of exceptionally large flowers of a clear, light blue colour, practically equalling the best varieties of the Amellus type in this respect. It makes a very fine pot plant, and by propagating it by means of cuttings during June, very dwarf, branched, floriferous examples are obtained in four- or five-inch pots by the flowering season, when they should prove of great value for conservatory or house decoration.

Mr. Winskill—an Englishman by birth—has made a hobby of growing and raising hardy Asters for a number of years, and he is enthusiastic over his latest creation, which he has named Skylands Queen. He told me that the new variety is a seedling, having the variety British Queen as the seed parent. *T. H. Everett, New York, U.S.A.*

SOCIETIES.

ROYAL HORTICULTURAL.

November 5:—Following the series of Special Shows, the Royal Horticultural Society has reverted to the normal miscellaneous one-day show, and with November paintings of flowers and garden scenes and sundries are admitted. It was a very small show in the new Horticultural Hall, Westminster, on the above date, although the attendance was larger than is usual late in the autumn. Orchids were shown in considerable quantity and beauty. The Orchid Committee recommended four First Class Certificates to novelties. The principal subjects before the Floral Committee were some excellent Nerines, hardy trees and shrubs displaying good autumn colouring, Carnations and late Roses. The Floral Committee recommended one Award of Merit to a berried shrub. Although there was no exhibit before the Fruit and Vegetable Committee, that body performed valuable work in naming many samples of Apples and passing judgment on various seedlings.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Fred J. Hanbury, Mr. J. Wilson Potter, Mr. Lionel de Rothschild, Mr. Richard G. Thwaites, Mr. Robert Paterson, Mr. T. Armstrong, Mr. Charles H. Curtis, Mr. J. E. Shill, Mr. J. Cowan, Mr. Fred K. Sander, Mr. A. Dye, and Mr. A. McBean.

First Class Certificates.

Vuylstekeara Etna, Stamperland var. (Miltonioda Harwoodii × Odontioda Charlesworthii).—A gloriously beautiful Orchid combining four genera in its composition. The plant shown was vigorous and had a branching spike carrying twenty-two flowers and buds. The open flowers are light, velvety crimson, a lovely glowing shade, but the wide, large and slightly frilled lip is deep cerise rather than crimson, with a small golden disk. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly.

Laelio-Cattleya Queen Mary, Stonehurst var. (L.-C. Lustre × C. Peetersii.).—A magnificent variety of this popular hybrid. It has very ample, mauve-purple sepals and petals and a huge, well-expanded, frilled lip of deep purple hue, flushed with ruby. Shown by Robert Paterson, Esq.

Brasso-Laelio-Cattelya Queen Elizabeth (B.-C. British Queen × L.-C. Ivanhoe).—This splendid hybrid has soft rosy-mauve sepals and petals, the former having a few pale streaks towards the base. The wide, rounded, frilled lip is of a deeper mauve shade, with a wide, soft, orange-yellow area in front of the short, white, purple-veined throat. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

Brasso-Laelio-Cattleya Heliolata, Dell Park var. (Cattleya Heliodor × Brasso-Laelio-Cattleya maculata.).—Yet another wondrously attractive and beautiful Orchid to add to the fine series of yellow-flowered hybrids raised at Dell Park. The flower is of very fine form and good size, and wholly of a soft amber-yellow colour save for a faint orange tint over the centre of the rounded, frilled lip. Shown by Baron Bruno Schröder.

Groups.

Although the number of exhibits at this meeting was limited, there were several excellent groups of Orchids.

Messrs. Sanders, Ltd., set up an interesting collection, showing Cattleya labiata var. in grand condition, together with several good plants of Oncidium tigrinum and O. bicallosum. Other notable Oncidiums were O. crispum var. grandiflorum, O. Forbesii, O. praetextum and O. varicosum var. extraria. Cattleya ardentissima, C. Fabia var., C. Fabianid, C. labiata var. Pescatorei, C. Bridal Veil, C. Portia and C. Gertrude Hollington, were shown well, together with Laelio-Cattleya Sunburst, L.-C. Walter Gott, L.-C. Gothaurea, L.-C. Erica Sander and L.-C. Fame; various Cypripediums, Bulbophyllum cupreum, Rodriguezia secunda, Sarcanthus acutifolium, and several other uncommon subjects.

Messrs. Cowan and Co. had fine specimen plants of several grand Orchids, including Cattleya Snowdon, C. labiata var. autumnalis, C. Fabia, C. Daedalus and C. Gloriette; Cypripedium Rosettii, C. Griffin, C. Ranleigh, C. Goliath and C. Actaeus; Odontioda Antirious, very fine, Brasso-Cattleya Nestor and Laelio-Cattleya Hilary.

Odontoglossums and Odontiodas were prominent in the small group set up by Messrs. Charlesworth and Co., Ltd.; among the former we noted O. grande, O. Toreador, O. Omega and O. Reve d'Or, while good Odontiodas were O. Pandora, O. Colinge, O. Geisha, O. Alesia and O. Clusia. This firm also showed the quaint Epidendrum xanthinum and E. ciliare, Cattleya Hardyana var. alba and C. Weedon-aurea, together with several fascinating Brasso-Laelio-Cattleyas, and Pleione Wallichiana in good condition.

Messrs. J. and A. McBean had well-flowered specimens of Cattleya labiata, C. A. M. Nicholas, C. Louise, C. Prince John and C. aureata; Miltonia vexillaria var. Leopoldii; Laelio-Cattleya Inez, Brasso-Cattleya Alexandrina and Brasso-Laelio-Cattleya Rowena, with several choice Cypripediums.

Several excellent plants of Vanda coerulea with flowers, in some instances, almost pure white, were shown by Mr. J. Evans, together with Oncidium bicallosum and O. tigrinum var. Rogersii.

Messrs. Stuart Low and Co. staged an interesting group which included grand plants of Laelio-Cattleya Cantab, L.-C. Gottiana, L.-C. Crowborough, L.-C. Radina and L.-C. Pioneer; Cattleya Fabia, C. General Jacques, C. Lancing, C. Gatton Ruby, C. Miguelito and C. Fabia; and Brasso-Cattleya Penelope, B.-C. Heatherwood, B.-C. Mars and B.-C. Poilu. They also showed various Cypripediums, Oncidiums and the lovely Brasso-Laelio-Cattleya Gordon Highlander.

F. J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead, showed two new Cypripediums—C. Florence E. King (C. Arethusa × C. Mercurius), and C. Ruby Gem (C. Niobe × C. Euryades).

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. G. W. Leak, Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. Donald Allan, Mr. James B. Riding, Mr. A. E. Vasey, Mr. J. M. Bridgeford, Mr. William Howe, Mr. Charles E, Pearson, Mr. W. B. Gingell, Mr. D. Ingamells, Mr. B. R. Long, Mr. D. B. Crane, Mr. R. Findlay Mrs. Helen Lindsay Smith and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. G. Reuthe, Mr. W. G. Baker, Mr. A. Bedford, Mr. Amos Perry, Mr. W. Irving, Mr. W. B. Cranfield, Mr. E. H. Wilding, Mr. R. C. Notcutt, Mr. F. G. Preston, Mr. T. Musgrave, Mr. Mark Fenwick, Mr. Reginald Cory, Mr. E. A. Bowles, Sir William Lawrence, Bart., Miss E. Willmott (visitor), and Mr. N. K. Gould, Secretary.

Award of Merit.

Lonicera Hemsleyana.—A Chinese, deciduous species of slender, graceful habit. The smallish, ovate-lanceolate leaves have rather longer stalks than is usual in the genus. The attraction at this season lies in the little bunches of fruits which are of bright red colour with the semi-transparency seen in the edible Red Currant. Shown by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Hampshire.

Other Novelties.

In addition to the Honeysuckle which received award, Lionel de Rothschild, Esq., showed sprays of Lonicera pileata var. yunnanense, a neat habited evergreen, bearing small, shining, green leaves and shining purple fruits. The Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, sent fruiting sprays of Pyrus Malus var. toringoides, one of the most attractive of the small-fruited Crabs; Pyrus Sorbus and Crataegus Dippeliana. The Countess of Cawdor (gr. Mr. H. Windebank), Frensham Hall, Haslemere, showed, in Galanthus Olgae, a very early Snowdrop, and also sprays of highly-coloured Berberis Giraldii and berried sprays of Gaultheria procumbens. Mrs. Maurice Pope (gr. Mr. W. Hiscock), Athwick Hall, Marshfield, Chippenham, sent a beautiful flowering spray of Bignonia venusta, from the cool greenhouse. Carnation Startler, shown by Messrs. C. Engelmann, Ltd., is a large, well-formed greenhouse variety of vivid scarlet colour, and is slightly fragrant.

Groups.

A small collection of excellent Nerines in pots was shown by Mr. W. H. Walters. The very best of the exceptionally good varieties were Lady Louise Loder, Mrs. E. Cator, Miss Ruggles and Mrs. H. T. Elwes.

Large collections of fresh and bright Carnations were arranged by Messrs. C. Engelmann, Ltd., and Messrs. Stuart Low and Co. The former had, in Madge, Duchess of York, Citron, Nina, Nero and Chirtz, vases of good Fancies, and staged the self-coloured sorts equally well. In the other collection, the bright pink varieties were well represented by Kathleen, Master Michael Stoop and Thomas Ives, while the best of the crimson sorts were Topsy, Philip Sassoon and Ruby Glow. Mr. G. Zambra staged good vases of Sweet Violets and included the varieties Princess of Wales and Princess Mary.

Very good late autumn Roses were displayed by Mr. J. H. Pemberton, whose best varieties were W. F. Dreer, Los Angeles, Bernice, Anne and Madame Butterfly. Messrs. Wheatcroft Bros. had several vases of the bright little variety Peter Pan.

An attractive collection of market type Chrysanthemums was staged by Mr. A. G. Vinten. The Singles were particularly good, and these included Phyllis Cooper, J. H. Blyth, Jessica and October Pink. Chief among the Japanese varieties were Yellow Marvel, Shirley Scarlet and sprays of Fifi.

Especially well coloured branches of trees and shrubs were set up by Messrs. Baggesens. Along the centre of the group they had many branches of an Oak, while the most vivid colour was provided by a vase of Cerasus Hisakura. Berberis Thunbergii was also richly coloured, while sprays of Enkianthus campanulatus of yellow and scarlet colouring were very beautiful. Messrs. L. R. Russell, Ltd., staged small Conifers, Ivies, Pernettya mucronata, Nandina domestica and several hardy Fuchsias. The Countess of Cawdor filled a table space with various Hollies bearing large quantities of brightly coloured berries.

The Sewell Medals which are periodically offered for exhibits of six alpines in pots or pans seem to be much more popular with amateurs than with the trade. In this autumn competition there were four exhibits from amateurs, but none from traders. The amateur's Medal was awarded to G. P. Baker, Esq., Hillside, Sevenoaks, for well-grown pans of Sedum creticum, Ramondia Heldriechii, R. pyrenaica, Saxifraga longifolia, Ebenus cretica and Saxifraga scardica. Mark Fenwick, Esq. (gr. Mr. W. Fustin), Abbottswood, Stow-in-the-Wold, Gloucestershire, had, in pans of Cyclamen neapolitanum, Ononis Natrix and Parochetus communis, three good late-flowering alpines. Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex, staged well-grown pans of Gaultheria procumbens, Sedum spathulifolium var. purpureum and Cotyledon chrysantha. Mrs. Torkington, The New Hall, Maidenhead, included Verbena chamaedryoides, Linaria verticillata, Cheiranthus Senoneri and Gentiana sino-ornata in flower.

Exhibits of paintings and garden designs were permitted at this meeting, and several interesting collections were shown, although the screens upon which the paintings were hung were not generally admired.

Mr. Percy S. Cane exhibited several large photographs of various gardens, while paintings of plants, garden scenes, etc., were shown by Miss M. Linnel, Miss Edith A. Anderson, Miss Ellen Warrington, Miss Winifred Walker, who had numerous flower studies, including many Narcissi; Miss M. Skinner, Miss E. Frances Drake, Miss A. Strickland, Miss Ellenor S. Ough, Miss Eva Kirkpatrick, the Hon. Mrs. R. Boyle, Miss A. T. Wilkinson, Mrs. M. Townsend, Mrs. H. Spencer and Miss G. E. Bayley.

Miss Winifred M. A. Brooke had an interesting series of illustrations of garden pests, and there was also an exhibit of paintings of fruits executed for the Society by W. Hooker in 1815-16.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. W. Poupart, Mr. A. Poupart, Mr. C. G. A. Nix, Mr. E. Beckett, Mr. G. F. Tinley, Mr. P. A. Tucker, Mr. E. A. Laxton, Mr. J. Cheal and Mr. A. N. Rawes, Secretary.

A number of seedling Apples was shown before this Committee, but none received recommendation.

The Committee also had numerous Apples and Pears before it for naming, but there were no exhibits of fruits in the hall.

The following awards have been made to the undermentioned flowers and vegetables by the Council of the Royal Horticultural Society, after trial at Wisley.

Kniphofias.

Awards of Merit.

(75) *Wisley Seedling*, entered by the R.H.S. Gardens; (83) *Fireflame*, sent by Messrs. Ruys; and (70) *Excellence*, sent by Messrs. Maurice Prichard and Sons.

Highly Commended.

(4) Lemon Queen, sent by Mr. R. C. Notcutt, Woodbridge.

Gladioli.

Awards of Merit.

(4) *Harmony*, (5) *Mrs. Unwin*, (7) *Emma*, (10) *Gladness*, (12) *Adoration*, and (13) *Captain Boynton*, all sent by Messrs. Velthuys, Hillegom.

Highly Commended.

(2) Ne Plus Ultra, (6) La Gaiété, and (8) The Queen, also sent by Messrs. Velthuys.

Fuchsias (Greenhouse).

Awards of Merit.

(10, 11) *Ballet Girl*, sent by Messrs. John Forbes, Ltd., and (50) *Cupid*, sent by Mr. W. Auton, alike; (12, 13), *Dainty Lady*, by Messrs. Dobbie and Co., Ltd., and Messrs. Carter Page, Ltd., and (73) *La France*, by Messrs. Dobbie and Co., Ltd., alike; (119) *Charming*, by Messrs. Dobbie and Co., Ltd., (137) *No. 3*, by Mr. Cory, Cardiff, and (14) *Display* (wrongly named), by Messrs. H. J. Jones, alike; (36) *Mrs. Marshall*, entered by the R.H.S. Gardens, (37), *Grande Duchess Marie*, and (83) *Leonardo di Vinci*, by Messrs. H. J. Jones, alike; (59) *Andenken A. H. Henkel*, by Messrs. Dobbie and Co., Ltd.; (60, 61), *Coralle*, by Messrs. H. J. Jones and Mr. Cory, Cardiff; (71) *Emile Zola*, by Messrs. John Forbes, Ltd.; (91) *Masterpiece*, by Messrs. John Forbes, Ltd., and (92) *Le Robuste*, by Messrs. H. J. Jones, alike; (79, 80) *Mauve Beauty*, by the Castle Nurseries and by Messrs. Dobbie and Co., Ltd.; and (126, 127) *Sunrad*, sent by Messrs. Carter Page, Ltd., and Messrs. John Forbes, Ltd.

Highly Commended.

(15) Display, sent by Messrs. Carter Page, Ltd.; (22) White Phenomenal, by Messrs. John Forbes, Ltd.; (23) Late Perfection, entered by the R.H.S. Gardens, and (68), Gartenmeister Bonstedt, by Messrs. John Forbes, Ltd., alike; (26) Earl of Beaconsfield, by Messrs. Dobbie and Co., Ltd.; (34, 35, 200) Fascination, by Mr. G. Carpenter, the Castle Nurseries, and Messrs. Philip Ladds, Ltd. and (49) Rose Ballet Girl, by Messrs. Carter Page, Ltd., alike; (39) Balkon, (46) Princess Mary, (54) Marinka, and (67) Aurora Superba, all sent by Messrs. H. J. Jones; (74) Rose of Castille, entered by the R.H.S. Gardens; (75, 76) Rose of Castille Improved, sent by Messrs. John Forbes, Ltd., and Messrs. Carter Page, Ltd.; (87) Scarcity (wrong name), by Messrs. John Forbes, Ltd.; (93) Killiecrankie (wrong name), by Messrs. John Forbes, Ltd., and (141) Carmen, by Sir Wm. Lawrence, all alike; (85) Beauty, by Messrs. John Forbes, Ltd.; (100, 101) Golden Treasure, by Messrs. John Forbes, Ltd., and Messrs. Dobbie and Co., Ltd.; (118) Clipper, by Messrs. John Forbes, Ltd.; (136) No. 2, by Mr. Cory; and (198) Unnamed, sent by Messrs. Bakers.

Fuchsias (Hardy).

Award of Merit.

(168) *Thompsonii*, sent by Messrs. R. Veitch and Son.

Highly Commended.

(156, 158), gracilis, sent by Messrs. J. Cheal and Sons, Ltd., and by Messrs. John Forbes, Ltd.; and (192) Americana, sent by Sir William Lawrence, Dorking.

Herbaceous Veronicas.

Award of Merit.

(69) *Exaltata*, sent by Messrs. John Forbes, Ltd.

Heleniums.

Award of Merit.

Wyndley, sent by Messrs. Carter Page, Ltd.

Larkspurs.

Awards of Merit.

(3) *Exquisite Rose*, and (4) *Exquisite Pink Improved*, sent by the Waller-Franklin Seed Company, California; and (5) *La France*, sent by Messrs. Bodger, California.

Perennial Gaillardia.

Highly Commended.

(9, 19) Tangerine, sent by Messrs. Barr and Sons, and by Messrs. Daniels Bros.

Godetia.

Highly Commended.

(6) Tall Double Cherry Red, sent by Messrs. Sutton and Sons.

Dwarf French Beans (Wax-Pods).

Award of Merit.

(16) *Perfection Butter*, sent by Messrs. Barr and Sons.

Highly Commended.

(2) Schlossperle, sent by Messrs. Heinemann, Erfurt, and (12) Kidney Wax, sent by Messrs. Burpee, California.

(Edible Green-Podded).

Commended.

(21, 22) Saxa Stringless, sent by Messrs. Zwaan and Van der Molen, and by Messrs. Heinemann.

(Tough Green-Podded).

First Class Certificate.

(66) *The Wonder*, sent by Messrs. Watkins and Simpson.

Awards of Merit.

(68) *The Wonder*, like the preceding, and (69) *Satisfaction*, sent by Messrs. Dobbie and Co., Ltd.; and (90) *Unrivalled*, sent by Messrs. Clucas.

Highly Commended.

(102) Fifty Days, sent by Messrs. James Carter and Co.; (29) African Wonder, by Messrs. Cooper Taber; (33) Ne Plus Ultra Selected, by Messrs. Hurst; (53) Bounteous, by Messrs. Watkins and Simpson; (60) Superlative, by Messrs. Nutting, and (62, 63) Magpie, by Messrs. James Carter and Co., and Messrs. Harrison, alike; (82) Canadian Wonder, by Messrs. Harrison; and (87) Canadian Express, and (88) Lightning, sent by Messrs. James Carter and Co.

Commended.

(35) Harbinger, and (74) Supreme, sent by Messrs. E. Webb and Sons, Ltd.; and (52) Holborn Wonder Stringless, sent by Messrs. James Carter and Co.

Broad Beans.

Awards of Merit.

(45) *Exhibition Giant*, sent by Messrs. E. W. King and Co.; (51) *Champion Longpod*, by Messrs. Dobbie and Co., Ltd.; (73) *Olympic Green-longpod*, by Messrs. Hurst and Son; and (79) *Green Leviathan*, sent by Messrs. James Carter and Co.

Highly Commended.

(20) Unrivalled Green Windsor, sent by Messrs. Sutton and Sons; (26) Four Seeded Windsor, re-selected, by Messrs. Hurst and Son; (34) Seville Longpod, by Messrs. Watkins and Simpson; (36) Longpod Selected, by Messrs. E. Webb and Sons, Ltd.; (37) Mammoth Longpod, by Messrs. Pennell; (40) Prolific, by Messrs. Dickson and Robinson; (44) Exhibition Longpod, by Messrs. Clucas; (54) Exhibition (Bunyard's), by Messrs. W. H. Simpson, and (57) Exhibition Longpod, by Messrs. Pennell (alike); (59) Hangdown, by Messrs. Sluis en Groot; (64) Sussex Wonder Longpod, by Messrs. Watkins and Simpson; (66) Kinver Mammoth, by Messrs. E. Webb and Sons, Ltd.; and (76) Mammoth New Green Longpod, sent by Messrs. Barr and Sons.

Commended.

(12 and 21) Mammoth Windsor, and (23) Homestead Green Windsor, sent by Messrs. James Carter and Co.; (27) Four Seeded Green Windsor, sent by Messrs. Middlehursts.

WIMBLEDON GARDENERS'.

The fortnightly meeting of the Wimbledon Gardeners' Society took place at the Queen's Hall, Wimbledon, on October 23. Mr. A. Hosking, of John Innes Horticultural Institution, presided, and there was again a good attendance.

Mr. J. Coutts, Assistant Curator, Royal Gardens, Kew, gave a splendid lecture on Roses. Seventy slides—many of which were coloured—were shown on the screen, and helped the audience to thoroughly grasp all the points which Mr. Coutts noted. The lecture was a lengthy one, but great attention was sustained throughout. An interesting discussion followed, and many questions were asked, after which Mr. F. Low, Vice-Chairman, proposed a vote of thanks to Mr. Coutts for his kindness in coming to Wimbledon and giving such an excellent lecture; this was seconded by Mr. K. Norrie, and passed unanimously.

Two specimens of interest were shown at this meeting, a branch of Scarlet Oak, by Miss Wiffen, and a Rose branch, very much fasciated, by Mr. E. Abrahams. These were commented upon by the Chairman, who then announced that owing to the Annual Exhibition occurring on November 13, there would not be a meeting until November 27, when Mr. G. B. Begg, of the John Innes Horticultural Institution, would lecture on "The Ideal Commercial Orchard."

AYRSHIRE AGRICULTURAL.

At the Annual Show of this Association, held at Kilmarnock on October 24 and 25, the Championship Medal for Potatos was awarded to a dish of Arran Banner, grown by Mr. William Laidlaw, Sanquhar, Dumfriesshire, who also secured the reserve honour and the first prizes in the classes for eighteen varieties, six varieties, and six tubers any white, round variety. Mr. James Thomson, Sanquhar, excelled with twelve varieties and nine varieties.

In the competition for fruits, Mr. A. Harvey, Rozelle Gardens, Ayr, provided the best collection of culinary Apples, six Pears, twelve Pears and the five heaviest Pears, while Mr. James Thomson was successful in the classes for a collection of dessert Apples, nine culinary Apples, nine dessert Apples, and the five heaviest Apples.

Other awards were:—Twelve red Tomatos, Mr. Archibald Brownlee, Largs; nine Onions, Mr. A. Harvey; and a collection of vegetables, Mr. Alex. Baillie, Kilmarnock.

HASTINGS (HAWKE'S BAY) HORTICULTURAL.

An exceptionally fine display of Daffodils was a feature of this Society's Spring Show, held in the Assembly Rooms, Hastings, New Zealand, on September 21. A large attendance, despite counter attractions, was ample evidence of the live interest taken by amateurs in floriculture; in fact, on travelling through the Dominion one is forcibly impressed by the general appearance and variety of "home" flowers to be found in the gardens of bungalows around the towns.

The principal exhibit was from Mr. J. G. Weightman, of Fielding, among whose blooms were some beautiful and perfect specimens of Hallmark and Honey Boy—yellow Trumpets; Beersheba and Kantara—white Trumpets; Gretchen, Militant Puzzle and Scarlet Pimpernel—Incomparabilis; with Madonna and Tenedos among the Leedsii group; and Lady Superior and Lady Moore among the Barrii forms. Cambridge was the champion bloom.

The entries by amateurs were good and numerous, including many in the classes for flowering shrubs, Freezias, Hyacinths, Polyanthuses and Cinerarias, in addition to many attractive floral baskets.

Perhaps the most popular exhibits were those of decorated dinner tables and mantlepieces, many of which displayed great taste and discrimination on the part of the exhibitors. The Society, which is affiliated to the R.H.S. (England), has every reason to be satisfied with its effort, which is bound to have a stimulating effect upon horticultural development in the Hawke's Bay district.

Particular interest was taken in the Daffodils at this year's show, since Mr. Guy L. Wilson, the noted Irish raiser, is at present visiting the Dominion, judging the exhibits at the Lower Hutt and Wellington Shows this week (September 21).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on October 4, the members of Committee present were Messrs. J. B. Adamson (in the chair), A. Burns, A. Coningsby, J. Evans, A. Keeling, W. J. Morgan and H. Arthur (Secretary).

First Class Certificate.

Cattleya Valencia, Towneley Grove var.—From J. B. Adamson, Esq.

Cultural Certificates.

To Mr. A. Burns, for Catasetum Bungerothii; and to Mr. W. J. Morgan, for Cypripedium Charlesworthii var. Bromilowiae.

Groups.

Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns), Bury, staged a group to which a Large Silver Medal was awarded; it included Cattleyas armainvillierense, C. Soulange and C. Adula, Bridge Hall variety; Odontoglossum grande, Epidendrum vitellinum, Phalaenopsis Esmeralda, Habenaria rhodocheila, Cycnoches ventricosum, and others. J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool, staged Cypripedium Eury. Belge in addition to the Cattleya certificated.

Messrs. A. J. Keeling and Sons, Bradford showed Cypripedium Black Prince and C. Rosettii var. Goliath, with Cattleya Golden Rain, and Mr. John Evans, Colwyn Bay, staged Cypripedium Felicity and C. Selene, with a Miltonia seedling.

At the meeting held on October 18, the members of Committee present were Messrs. Hy. Astley-Bell (in the chair), J. B. Adamson, A. Burns, A. Coningsby, J. Evans, A. Keeling, and H. Arthur (Secretary). Mr. A. E. Dale was invited to sit with the Committee.

Awards of Merit.

Cypripedium Griselda (*C. Dreadnought* × *C. Amandinae*) and *C. King Arthur var. Tamworth.* From Messrs. A. J. Keeling and Sons.

Cypripedium Mrs. A. E. Dale (*C. Christopher var. Grand Duke Nicholas* × *C. Shogun*).—From A. E. Dale, Esq.

Cattleya Mrs. Medo var. Regina.—From Mr. John Evans.

Cultural Certificate.

To Mr. A. Coningsby, for Cattleya Mantinii var. splendens.

Groups.

J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool, staged Cypripedium M. Ogilvie var. Imperator, C. Eurybiades var. The King, C. Sunrise, C. Dante, C. Tom Abbott, C. Gaston Bultel and C. King Edward VII, with Miltonia Binotii.

Captain W. Horridge (gr. Mr. A. Coningsby), Bury, staged two fine plants of Cattleya Mantinii var. splendens, and Messrs. A. J. Keeling and Sons showed, in addition to the plants gaining awards, Pachystoma Thompsoniana, Barkeria spectabilis, and Odontioda Leonidas. Mr. John Evans, Colwyn Bay, staged Odontoglossum Omega and a blotched hybrid.

GUILDFORD GARDENERS'.

For the opening lecture of the ensuing season, this Society was favoured with a visit by Mr. H. H. Cook, of Reading, who delivered a very interesting lecture on "The Forcing of Vegetables and Salads." Mr. Cook spoke from a practical knowledge gained in Ireland and elsewhere, and he detailed the best methods for securing successful results. The Mushroom-house is his ideal forcing house.

Mr. Turner, of Albury Park, in proposing a vote of thanks, said it was a happy thought to begin the lectures with this topic. It came just at the right time for gardeners to make their plans, and carry out the valuable hints Mr. Cook had given. Mr. Newan, of Tangley Place, seconded the vote, and referred to the interest Mr. Cook had taken in the Guildford Association, this being his third visit. These expressions were supported by the President, Mr. W. T. Patrick, who presided.

On a proposition made by the Editor of the monthly *Journal* of this Society, Mr. Cook was asked to convey the friendly greetings of the members to the Reading Gardeners' Society, which he undertook to do.

The next meeting is fixed for November 12, when Mr. A. E. Burgess, of the Surrey County Council, will deal with "Manures and Manuring." The annual meeting of the Society will be held on November 19.

SPALDING POTATO SHOW.

A large entry and the high quality of the exhibits characterised the Holland (Lincolnshire) County Potato Show, held at Spalding on October 24. A favourable season has resulted in all-round excellence, and the exhibition proved a notable one in a district already famed for its Potatos.

Entries numbered 330, about the same as for the past two years. Ware Potatos were the strongest section, and the judges declared that better quality ware Potatos had not previously been seen at this show.

An outstanding feature was the classes for single dishes of King Edward and Majestic. The exhibits of the small-holders were highly commended, and were nearly up to the standard of the large growers.

The winners of special prizes, Challenge Cups, and Gold and Silver Medals, comprised the following :—Mr. C. Ibbott, of Holbeach, near Spalding ; Mr. J. Fox, Weston Hills, Spalding ; Messrs. D'Alcorn and Son, of Spalding ; Mr. Cecil Robinson, of Quadring, near Donington ; Mr. S. Markillie, of Longsutton ; Mr. H. Roughton, of Holbeach ; Mr. T. A. Pick, of Deeping Saint Nicholas, near Spalding ; Mr. W. H. Fuller, of Lincoln ; Mr. A. B. Bass, of Holbeach Marsh ; Mr. William Gilding, Chairman of the Show Committee, of Swineshead, near Boston ; Mr. E. S. Markillie, of Longsutton ; Mr. G. W. Naylor, of Moulton Marsh, Spalding ; Mr. J. Cox, of Weston Hills ; Messrs. Gratton and Sons, of Boston ; Messrs. Harrison McGreggor and Co., of Leith, Lancashire ; and the Allied Guano Chemical Company, London.

IPSWICH GARDENERS'.

About sixty-five members were present at the montly meeting of the above Association in mid-October. The meeting was presided over by W. Bradbury, Esq., and the lecturer for the evening was Captain F. S. Harvey Cant, the eminent Rosarian of Colchester, who delivered and extremely interesting lecture on Roses.

He reviewed the numerous varieties which have been introduced to cultivation during the last dozen or so years, and gave many valuable cultural hints.

An interesting feature of this meeting was the large array of exhibits for the monthly competition.

BRITISH GLADIOLUS.

The Annual Meeting of the British Gladiolus Society was held at the new R.H.S. Hall, on the afternoon of October 23. The President, Major George Churcher, occupied the chair, supported by a good gathering of the Society's members.

The report disclosed a happy state of affairs, and indicated that this young Society had experienced a record year in all directions, the most surprising feature being the increase in membership of 221 and six new affiliated societies—making the total membership at the end of September 535, including eighteen affiliated societies. A letter of thanks and appreciation from the Chairman of the Southport Flower Show Committee was read, and an intimation that the Society would be invited to hold its 1932 " International " at Southport was received with acclamation.

Major G. Churcher was re-elected President, and the names of Colonel F. E. Durham, C.B.E., E. S. Cahill, Esq. (Australia), and A. C. Collingridge, Esq., were added to the list of Vice-Presidents. Mrs. J. C. Collingridge, a splendid worker for the Society and its only lady Vice-President, was unanimously elected a Patron. The Hon. Secretary, Mr. A. E. Amos ; Hon. Librarian, Captain A. H. Amor ; and the Society's Auditors, Messrs. Cooper and Norfolk, Colchester, were re-elected with thanks for past services. The following additional members were elected to the Council for 1930 :—Messrs. J. J. Keen, Southampton ; L. C. Adkins, Chelmsford ; and G. C. Taylor, London.

In 1930, the Society will again hold two exhibitions, one at Taunton (in conjunction with the Taunton Deane Floricultural Exhibition) on August 13 and 14, and a small exhibition at the new R.H.S. Hall, London, on August 26. Messrs. R. H. Jeffers (London), F. W. Hellings (Kingston), and T. J. Child (Catford), were unanimously elected Show Superintendents.

A motion that the Society's Silver-gilt Medal be presented to Mr. T. E. Wolstenholme, Secretary of the Southport Flower Show, as a memento of the 1929 " International," and a token of appreciation, was carried with much applause.

ANSWERS TO CORRESPONDENTS.

Carnations Infested with Red Spider.—*S. G.* A spray which has been successful in controlling red spider on Carnations is the Cheshunt formula for liver of sulphur oil wash. To prepare this :—(1) Dissolve 1 oz. of commercial liver of sulphur in 4½ fluid ozs. of soft water ; (2) heat in a large saucepan 2 oz. potash soft soap with 1 fluid oz. of fusel oil, and stir until all the soap has completely dissolved. When No. 2 is cold, strain No. 1 through a fine cloth into it. Shake the mixture before diluting it with soft water at the rate of one part to forty-nine parts of water. This wash will not remove the " bloom " from Carnation foiiage.

Names of Fruits.—*J. K.* 1, Watcombe Hero ; 2, Northern Greening ; 3, Emperor Alexander ; 4, Court Pendu Platt ; 5, Yorkshire Greening ; 6, badly damaged, cannot identify ; 7, Lane's Prince Albert ; 8, James Grieve (poor specimen) ; 9, Reinette du Canada.—*J. J. H.* 1 and 4, Newton Wonder ; 2, Northern Greening ; 3, Beauty of Stoke.—*J. P.* 1, Blenheim Pippin ; 2, Lord Derby ; 3, Barnack Beauty ; 4, Wealthy; 5, possibly Winter Greening ; 6, Allington Pippin ; 7, Hubbard's Pearmain.—*Kentish Cob.* 1, Golden Noble ; 2, Gravenstein.—*R. W. T.* Possibly Mrs. Phillimore, but difficult to be certain as the fruit was a poor specimen.—*F. W. D.* 1, Charles Ross ; 2, Endsleigh Beauty ; 3, Worcester Pearmain ; 4, Minchell Crab ; 5 and 6, Christmas or Claygate Pearmain—these specimens were too poor to make certain of this.—*I. R.* 1, Gold Medal ; 2, Northern Greening ; 3, Ribston Pippin.—*G. S.* 1, Golden Spire ; 2, possibly Northern Greening ; 3, Fertility ; 4, Brown Beurré.—*D. C.* Mrs. Phillimore.

Names of Plants.—*Budleigh.* Hippophae salicifolia (the Himalayan Sea Buckthorn).—*G.* Polygonum amplexicaule. *G.* Shrub, Double Myrtle ; Crocus, probably C. speciosus ; Moraea sp., send more material.—*G. S.* Danaea racemos, the Alexandrian Laurel.

Nephrolepis.—*R. W. R.* The " mossy " varieties of Nephrolepis exaltata require the shelter of a warm greenhouse or intermediate house. Although they delight in plenty of atmospheric moisture when making their new fronds, much less atmospheric moisture is desirable when the fronds are dense and from half to fully-grown. The frequent subdivision of the pinnae of these varieties gives the Ferns an added elegance, but such fronds hold the moisture, which causes breaking and damping.

Planting Plan for Border.—*W. W. W.* When considering a new planting scheme for your border, you might do worse than try a foliage effect, using such subjects as Centaurea candidissima, C. gymnocarpa, Coleus Vershaffeltii, Eucalyptus globulus, Iresines, Abutilon Thompsonii, Albizzia lophantha, Leucophyton Brownii, Veronica Andersoni var. variegata, and Artemisia arborescens, to mention a few. There are also several hardy grasses, such as Holcus mollis var. variegata, also the variegated forms of Dactylis glomerata, in short, use any plants with coloured or variegated foliage that you can conveniently secure. They should be arranged in groups of three, four or six plants ; the edging or front could be made up with groups of flowering plants, such as Lobelia and Alyssum. You can, of course, have a continuous edging of one subject, but a broken one is generally more effective ; this, however, is a matter of individual taste. There is no reason why groups of flowering plants should not be mixed with the foliage. A planting on these lines is bright at all times, and remains effective until the end of the season. If you must have flowering plants, you could try a scheme in blue, using groups of Salvia farinacea at the back, along with Eucalyptus globulus or some other grey-foliaged plant ; then a line of Salvia patens, followed with Delphinium Blue Butterfly, and an edging of blue and white Lobelia and white Alyssum. A few groups of a pale yellow plant, such as Calceolaria amplexicaulis, adds greatly to the effect. For a pink scheme, you could use, for the back, pink-flowered Pentstemons, followed with pink Verbenas in various shades, then Begonia semperflorens in pink shades, and an edging of white Lobelia or Alyssum. If you want a brighter effect, you could plant Dahlia Lemur at the back, then Salvia Glory of Zurich or Harbinger, followed by a scarlet Verbena, such as Defiance—easily raised from seeds—with an edging of a red B. semperflorens, interspersed with white Alyssum. We have tried, so far as possible, to suggest plants that can be raised easily from seeds. It is difficult to give planting schemes, unless we have some idea of your individual taste in colours, etc.

Primula japonica and Eelworm.—*A. P. D.* The plant of Primula japonica is heavily infested with the stem eelworm, Tylenchus dipsaci. It is due to the presence of this worm that there is proliferation of buds in the centre of the plant. This pest is exceedingly difficult to control. Diseased plants and decayed parts of the plants still remaining in the soil should be removed and burnt and not placed on the rubbish heap. Primula japonica should not be planted in the infected area for a period of at least three years, but should be replaced by Irises or other waterside plants.

Rating Relief.—*J. W.* If your holding consists of land exceeding one-quarter-of-an-acre used for the purpose of poultry farming, orchard or cottage garden, and comprises a dwelling-house, and you are primarily engaged in carrying on or directing agricultural operations on the agricultural land connected with the house, you are entitled to have the house assessed at a lower valuation than if it was assessed as a dwelling-house for general use. The Act provides for an appeal to Quarter Sessions if anyone is not satisfied with the decision of the Assessment Committee. The date fixed for applications to the Assessment Committee is any time before November 1 next.

Young Vines.—*F. G. R.* It is not good practice to plant young vines in an old border, but if you have removed the inside border with good compost, and examined the drainage, there is no reason why young vines should not continue to make satisfactory progress. In your case the spring of the year would be the best time for planting, when you start the Muscats. As the vines are healthy, see that they are thoroughly moist at the roots before being turned out of the pots ; have the drainage removed and the soil all round the roots loosened with a pointed stick ; spread out the roots carefully, two or three inches deep and set the collar about one inch deeper than it was in the pot. Make the soil firm, and give sufficient tepid water to settle the soil about the roots. Damp them slightly overhead three times a day with tepid water until new roots have pushed through into the new soil, and afterwards use every means, by careful watering, damping and airing, to encourage the vines to make free growth throughout the growing season.

Communications Received.—N. C.—L. J. C —H. C.—W. L.—J. C.—J. B.—S. S.—J. F.—D. A.—J. W.—L. B. C.

MARKETS.

COVENT GARDEN, Tuesday, November 5, 1929.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.... ...	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	30 0–36 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	18 0–24 0
Crotons, per doz.	30 0–45 0
Cyclamen, various, 32's, per doz.	48 0–54 0
— — per doz. ...	18 0 24 0
Cyrtomiums ...	10 0–12 0

	s. d. s. d.
Erica gracilis, per doz. ...	24 0–30 0
—nivalis, per doz.... ...	24 0–30 0
— the above in 60's, per doz.	10 0–12 0
— the above in thumbs, per doz. ...	6 0—8 0
Marguerites, white, per doz.... ...	18 0–24 0
Nephrolepis, in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's	5 0—6 0
—small „ ...	4 0—5 0
—72's per tray of 15 ...	2 6—3 6
Solanums, per doz. ...	15 0–18 0
—60's, per doz.	9 0–10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	7 0—8 0
Arums (Richardias), per doz. blooms	8 0–10 0
Asparagus, plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „ ...	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 3—1 6
—short „ ...	0 6—0 9
Camellias, white, per doz. ...	3 0—3 6
Carnations, per doz. blooms...	2 6—5 0
Chrysanthemums, bronze, per doz. blooms...	2 0—6 0
—white, per doz. blooms ...	2 6—6 0
—yellow, per doz. blooms...	2 6—5 0
—pink, per doz. blooms ...	2 6—5 0
—bronze, sprays, per doz. bun.	9 0–18 0
—white, sprays, per doz. bun.	9 0–18 0
—yellow, sprays, per doz. bun.	10 0–15 0
—pink, sprays, per doz. bun.	9 0–15 0
—large specimen blooms, per doz.	9 0–12 0
—single, disbudded, per doz. blooms	4 0—6 0
— — spray, per doz. bun. ...	12 0 18 0
Cornflowers, blue, per doz. bun.	3 0—3 6
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Foliage—	
Ampelopsis leaves, per doz. bun....	4 0—5 0
Hardy foliage, in variety, per doz. bun.	4 0–12 0

	s. d. s. d.
Forget-me-nots, per doz. bun.	10 0–12 0
French—	
Acacia (Mimosa), per doz. bun.	15 0–18 0
Carnations, various, per doz. bun....	9 0–10 0
Chillies, loose, per pad ...	5 0—6 0
Marguerites, yellow, per pad ...	6 0—7 0
Violets, Parma, large, per bun. ...	6 0—7 0
Heather, white, per doz. bun.	— 12 0
Lilium longiflorum, long, per bun. ...	4 0—5 0
—auratum, per doz. blooms .	6 0—7 0
Lily-of-the-Valley, per doz. bun.	18 0–27 0
Marigolds, per doz. bun. ...	2 6—3 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0–42 0
—Cypripediums	9 0–18 0
Roses, per doz. blooms—	
—Columbia ...	2 6—3 6
—Richmond ...	2 6—5 0
—Yellow ...	2 0—4 6
—Molly Crawford	2 6—3 6
—Mad. Butterfly	2 0—4 6
Smilax, per doz. trails ...	3 0—4 0
Statice, mauve, per doz. bun.	6 0—8 0
Stocks, double white, per doz. bun.... ...	4 0—6 0
Violets, single, per doz. bun.	2 0—4 0

Remarks.—The general conditions throughout this department were somewhat disappointing last week. Chrysanthemums are far too numerous for trade requirements. The latest arrivals in disbudded blooms are Mrs Roots, Ada Brooker, Ivy Gay and Romance, and Lizzie Adcock, Scource d'Or and Jean Patterson are the most prominent in spray varieties. Single varieties, disbudded, in shades of red, pink, yellow and bronze, are the finest offered this season, and prices range from 2s. to 6s. per dozen blooms. Carnations remain steady in price, while supplies of best grade Roses are lessening and prices firmer. Lilium longiflorum remains at 4s. 6d. to 5s. per dozen, and supplies of Arums (Richardias) are still below requirements, with prices firmer for home-grown blooms. Orchids, both Cattleyas and Cypripediums, are much more plentiful. A few bunches of coloured Bouvardias have been on sale during the past week, while supplies of Gardenias, Lapagerias and Stephanotis are much shorter. Supplies from France are increasing almost daily. The first arrivals of Paper White Narcissi reached the market on Thursday last and were soon sold at very high prices. Yellow Marguerites and Carnations are arriving in a better condition, and more Parma Violets are expected for this week. Chillies and Solanum berries are now arriving in good condition, also several pads of Ruscus, Eucalyptus, Myrtle and Berberis.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—King of the Pippins, per ½-sieve ...	3 0—6 0
—Allington Pippin, per ½-sieve	3 0—6 0
—Cox's Orange Pippin, tray	3 0—8 0
—½-bushel ...	6 0–12 0
—Bramley's Seedling	4 0—8 0
—Lord Derby...	3 0—6 0
—Lane's Prince Albert, per bushel ...	4 0—7 6
—Newton Pippin	4 0—7 6
—Bismarck ...	4 0—6 0
—Charles Ross, per tray ...	3 6—4 6
—Rival, per tray	3 0—4 0
Apples—	
—Nova Scotian, Cox's Orange Pippin, ½-barrel	20 0–30 0
Bananas, per bun.... ...	11 0–19 0
Grapes, English—	
—Alicante ...	1 0—2 6
—Gros Colmar	1 6—3 0
—Muscat of Alexandria ...	3 0—6 0
—Canon Hall...	2 0—6 0

	s. d. s. d.
Grape Fruits ...	— 30 0
Lemons, per case—	
—Messina ...	14 0–25 0
—Naples ...	24 0–30 0
Melons, each ...	1 6—4 0
Nectarines, per doz.... ...	4 0–18 0
Nuts, Cob, per lb.	0 5½–0 6
Oranges—	
—Cape Navels, per case ...	18 0–20 0
—Valencia ...	12 0–15 0
—Brazilian ...	12 0–14 0
Peaches, per doz.... ...	6 0–18 0
Pears, English—	
—Pitmaston Duchess, per tray	3 6—5 0
—Buerré Hardy, per ½-bushel	4 0–10 0
—Doyenné du Comice, per doz.	2 0—6 0
—Conference, per ½-bushel	4 0—7 0
—Californian—	
—Buerré Hardy, per case ...	14 0–16 0
—Doyenne du Comice, per case	15 0–18 0
Pineapples, case	21 0–36 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, French, per pad ...	4 0—6 0
—Madeira ...	2 6—3 6
—Guernsey, per lb.	0 9—1 6
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-sieve ...	3 0—5 0
Cabbage, per doz.... ...	1 6—2 0
Carrots, per ½-bag, washed	4 0—6 0
Cauliflowers, per crate, 18's, 24's	6 0—9 0
Endive, French, per crate, 18's and 24's ...	5 0—6 0
—Batavia, per crate ...	4 0—6 0
Lettuce, Cabbage, 18's, 24's ...	2 0—3 0

	s. d. s. d.
Mint, per doz. bun.... ...	2 0—3 0
Mushrooms—	
—cups, per lb.	2 6—3 0
—broilers ...	1 6—2 0
—field, per lb.	0 10–1 0
Parsnips, per cwt. ...	4 0—5 0
Potatos, cwt ...	4 0—6 0
Tomatos, English, per box. of 12 lbs.—	
—pink... ...	5 0—8 0
—pink and white	5 0—8 0
—white ...	4 0—6 0
—blue	3 0—4 6
—Guernsey ...	4 0—6 0
—Canary Island	15 0 22 6
Turnips, per doz. bun.... ...	4 0—6 0

Remarks.—There has been some slight improvement in the fruit section, although this has not been accompanied by a general increase in prices. The hothouse Grape department reports a better enquiry for best Grapes, but the competition of Belgian Grapes is unfavourable to the lower grades of English Grapes. English Apples are not entirely a satisfactory business, and the trade, even for top grades, has been variable; probably the increasing arrivals of Apples from abroad are the disturbing factor. Some fairly good English Pears have been available and met a moderate demand, although where other than the finest specimens are marketed in trays they have been difficult to sell at satisfactory prices. The Mushroom business is firm, best cups selling freely at good prices. Hothouse Beans from Guernsey and the Worthing district are doing rather better and should continue to do so now until the end of their season. The few good English Tomatos sell well, but indifferently-coloured produce is difficult to dispose of. Cucumbers are in shorter supply and an improvement in values is recorded. In the vegetable market Cauliflowers and Brussels Sprouts are a firm trade. Cabbages and Savoys are fairly plentiful and are selling at reasonable levels. The salads from France continue to meet a good demand, and the few English Lettuces available also sell well. Root vegetables are in moderate demand, and the colder weather is favourable to the Potato trade.

GLASGOW.

A good volume of business was transacted in the cut flower market last week and, while prices of certain varieties of Chrysanthemums displayed a slightly easier tendency, the general tone was steadier than it has been of late. Pink Consul were worth 1s. 6d. to 1s. 9d. for 6's; Pink Profusion, Cranford Yellow, Bronze Consul and La Pactole, 1s. to 1s. 6d.; White and Yellow Thorpe, 1s. to 1s. 2d.; Rose Maid, 1s. to 1s. 3d.; Sanctity, 8d. to 1s. 3d.; Almirante, 8d. to 1s.; Dolores, 7d. to 10d.; Jean Pattison, 2s. per bunch of 12's; Phyllis Cooper, 3s.; Mason's Bronze, 2s. 6d.; and Exmouth Pink and Pink Chieftain, 2s. 3d. Arums (Richardias) ranged from 6s. to 8s. per bunch; Violets, 4s. to 5s. per dozen bunches; Lily-of-the-Valley 2s. to 2s. 6d. per bunch; Carnations, 2s. to 3s. 6d. per dozen; pink Roses, 2s. 6d. to 4s.; red, 1s. to 2s.; Dahlias, 3d. to 4d. per bunch; Smilax, small, 1s., medium, 1s. 6d., and large, 2s.

Pot plants were in good demand, and made the following prices:—Heaths, 48's, 3s. 6d.; 60's, 1s. 6d.; Marguerites, 2s.; Solanum, 1s.; and Chrysanthemums, 2s. 3d.

Apples dominated the fruit market, and while prices continued comparatively high, they reflected a reduction of 1s. per case on larger imports from Canada and the United States. Delicious realised 18s. to 20s.; Jonathan, extra fancy, 16s. 9d.; fancy; 15s. 9d.; choice, 14s. 9d.; McIntosh Red, 16s. 6d., 15s. 6d. and 14s. 6d.; York Imperial, 26s. to 30s. per barrel; Kings, 25s. to 30s.; Wealthy, 28s. to 36s.; Lord Derby, 10s. per half-barrel, and Bramley's Seedling, 11s. Doyenné du Comice Pears sold at 25s. to 27s.; Winter Nelis, 21s. to 24s.; Beurré d'Anjou, 20s.; Keiffer, 12s. 6d. to 15s.; and Conference, 6d. per lb. Grape Fruits, Blue Goose, 80's and 96's, made 38s. 6d.; Triangular brand, 80's, 34s.; 96's, 35s.; South African Oranges, 176's, 150's and 200's, 24s.; Gros Colmar Grapes, 3s. 6d. per lb.; Alicante, 2s. 6d.; Black Hamburgh, 2s.; Muscats, 4s. 6d.; Melons, 4s. 6d. each; Pineapples, 4s.; and Persimmons, 1s. per box.

In the vegetable section, French Beans averaged 8d. per lb.; Madeira Beans, 5s. per box; Tomatos, 9d. to 11d. per lb.; Mushrooms, 2s.; Cauliflowers, 4s. to 6s. per dozen; Cucumbers, 3s. to 5s.; Lettuces, 2s. to 2s. 6d. per box; Leeks, 6d. per bundle, and Brussels Sprouts, 5s. per half-pot.

GARDENING APPOINTMENTS.

Mr. E. Edwards, for the past two years foreman at Moreton Hall, Cheshire, and previously for four years at Hatfield, Temple Newsam, and Chiddington Castle, as Gardener to the Hon. W. G. A. Ormsby-Gore, Wootton House, Bedford. [Thanks for 2s. 6d. for the R.G.O.F. Box.—Eds.]

Mr. A. Munday, for the past seven-and-a-half years Gardener to A. Manners, Esq., Littleover Old Hall, Derby, as Gardener to P. Robinson, Esq., Park Hill, Egginton, Derby.

THE HARDY HEATHS
AND SOME OF THEIR NEARER ALLIES
By A. T. JOHNSON.
Price 3s. 9d. post free.

This little book, the second of the GARDENERS' CHRONICLE HANDBOOK series (of which "RHODODENDRONS" was the first) has met with a very warm reception from the gardening public, and deservedly so. Heather is always beautiful, whether it is viewed at a distance clothing the rugged sides of a hill, or seen at close quarters, each little purple bell standing out from the narrow foliage. The Heaths and their allies comprise countless varieties, all in their own way beautiful and all susceptible of naturalisation within certain wide limits. Those who have soil in which Heather grows naturally should read this book to learn of the delights and of the requirements of a Heather garden.

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THE
Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the past fifty years at Greenwich, 43·0°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, November 13, 10 a.m. (Greenwich time). Bar. 29·5. Temp. 42°. Weather, Overcast.

The New Forest.

EVERY now and then the Society which was formed with the object of preserving the New Forest finds itself obliged to utter warnings and exhortations and to point out ways in which the Forestry Commission, under whose charge we believe the New Forest now is, might aid in the preservation of this most beautiful region of southern England. In its most recent plaint, the Society calls the attention of the Forestry Commission to the need for repressing seedling "Firs" which bid fair to encroach on and destroy the open moors which are, paradoxically enough, one of the glories of the New Forest. None who has seen them of an evening with Heather, like purple smoke from smouldering fires, and Bracken, brilliant yellow on the drier and crimson on the wetter parts, would welcome the destruction of these wide open spaces in the Forest. Indeed—to ask this question is our object in referring to the subject now—is it not time for all this bickering about the New Forest to cease? The Forestry Commissioners, full of zeal for a cause which we have all at heart, casts its purposeful eye on the New Forest. Imagine the energetic young officer, fresh, perhaps, from Finland, paying his first visit to the Forest, and after observing the occasional Oaks and the frequent lack of trees, asking "Where is the New Forest?" Imagine, further, his quickened determination to show us what a forest should look like; soft-wooded trees growing into money is the ideal which fires him. Can it not be stated and declared once for all that none of this myopic efficiency is to be tolerated. The lovers of the forest, and they are legion, desire it to be kept as it is, with its barrenness, its bogginess and its beauty. Everything is being "improved"—well, at all events, leave loveliness out of the schedule. We suggest to the society which with such energy and success is defending the New Forest from its would-be saviours that they should obtain from the Forestry Commission a complete recantation of intention. If ever the Commission had the intention to make the New Forest a Pine and Fir, or even a mixed, forest, let them abandon it for ever. No one wants it. The revenue ultimately accruing from the rejuvenated forest would not solace the sorrows of anyone of the thousands of people who love it as it is and for what it is—a sanctuary for man and bird and beast and flower. Let the forest, therefore, revert back to the conservators, whoever they were, who so well understood the feelings of those who frequented the forest, and who consistently left it alone. The Forestry Commission is a business body interested in growing profitable timber. That is a worthy avocation, the strenuous pursuit of which—in proper time and place—we all applaud. But the New Forest is not the proper place, and now is not the appointed time. So long as the forest remains under the charge of a Forestry Commission, unfriendly, efficient hands will always itch to be planting it with "Firs" and making it remunerative. They must be made to understand that it is more remunerative as it is than ever they can make it. Perchance, when they realise that the return the forest gives is paid not in cash but in kind—in kindly welcome, in the bestowal of peace and in the sweets of solitude, they will once for all cease from troubling the New Forest with their good intentions, and it and we shall be at rest! Best off it would be if, with good grace, the Commissioners would make the management of the New Forest over to the society which holds retreats and sanctuaries in trust for the public and does not seek to turn them into money-making concerns or even to improve them agriculturally—for marsh and heath and barren land are all Nature's children, very feckless, but lovely—and man does not live by bread alone.

Preservation of West Wycombe.—In connection with its self-appointed task of purchasing and preserving the village of West Wycombe, Buckinghamshire, the Council of the Royal Society of Arts proposes to issue very shortly an appeal booklet descriptive of the village and the aims of those undertaking the work of preserving its old world beauty and conditions. This booklet will contain an appeal for funds and Her Majesty the Queen has shown her interest in the Society's efforts by accepting an advance copy of the publication. Through the generosity of Lady Binning, a house not previously available has been acquired, and this will be used as a guest house and also as a centre whence information may be obtained concerning the village, its history and activities.

Preservation of Rural England.—On Wednesday, November 20, Mr. P. Morley Horder will deliver a lecture on "The Protection of Rural England," at the Royal Society of Arts, John Street, Adelphi, London, W.C.2, at 8 p.m. On December 4, at the same hour and place, Mr. Harry H. Peach, Hon. Secretary of the Council for the Preservation of Rural England Exhibition Committee, will lecture on "The Advertiser and the Disfigurement of Town and Countryside: Criticisms and Suggestions." The chair will be taken on this occasion by Sir Lawrence Weaver, K.B.E.

Demonstration of Advance of Plant Science.—With a view to discovering the best means whereby the advances made in plant science during the past one hundred years may be demonstrated effectively at the Century of Progress Exhibition, to be held in Chicago in 1933, eight leading botanists of America have been selected by Dr. Daniel T. MacDougal, of the Desert Laboratory of the Carnegie Institute, at Tucson, Arizona, to constitute a Committee which will consider the subject. The botanists selected are:—Dr. C. S. Gager, Brooklyn Botanical Gardens; Professor E. M. East, Bussy Institute, Boston; Dr. George T. Moore, Missouri Botanical Gardens, St. Louis; Professor H. P. Brown, Syracuse University; Professor J. Arthur Harris, University of Minnesota; Dr. E. D. Merrill, University of California; Professor J. B. Overton, University of Wisconsin, and Professor E. J. Kraus, University of Chicago.

Markeaton Park, Derby—Upon the provisional promise by the Derby Corporation to purchase, for £18,000, one-hundred-and-eighty acres of Markeaton Park, situated on the outskirts of the town, for the use of the public, the Rev. W. G. Clark-Maxwell, present owner of the estate, has promised to present the borough with the mansion therein.

The National Mark.—A booklet describing the extent to which the National Mark has been applied as a means of identification of home-grown agricultural produce, and the grades into which various kinds of produce are divided, has been prepared by the Ministry of Agriculture and issued by the Empire Marketing Board.

Window Gardens in London.—In connection with the campaign it is organising to popularise window-boxes in London, the London Gardens Guild has made arrangements for a lecture on "The Construction and Cultivation of Window-boxes," to be given at Prince Henry's Room, 17, Fleet Street, on Tuesday, November 26, at 8 p.m., by Mr. W. Stewart, N.D.H., Superintendent of the Royal Hospital Gardens. Admission is free.

American grown Narcissus Bulbs.—An interesting reflection, by implication, on American-grown Narcissus bulbs is found in a report of the School Garden Association of New York. This Association distributed 265,000 Paper White Narcissus bulbs to various schools last year, and a similar number in several previous years, but this year, owing to prohibition, American bulbs had to be used, and these showed so great a lack of uniformity that two schools, on adjoining blocks, reported entirely different results. For the present season the Association has arranged to obtain bulbs from different bulb-growing districts in the United States with a view to making comparisons.

Oaks in the Arnold Arboretum.—Oaks, best loved of trees by the Anglo-Saxon race, are the glory of northern forests. They have been associated with our history from immemorial time and the veriest tyro among tree lovers recognises an Oak at a glance. They form the genus Quercus and the members are widely distributed through northern regions, dipping into the tropics of both hemispheres. A majority of the species are evergreen, quite a few of which are natives of North America, but not a single evergreen Oak has proved hardy in the Arnold Arboretum (U.S.A). This is a pity, since one and all are beautiful umbrageous trees, none more so than the Holm Oak of Europe (Quercus Ilex), of which Kew Gardens boasts magnificent specimens. In North America and Canada some eighty-five species, of which twenty-eight are shrubs, and about sixty natural hybrids, are recognised. In the Arnold Arboretum sixty species and hybrids are successfully grown, the collection being, perhaps, the finest of the tree groups. New England is well represented in Oak species; in the Arboretum itself six are native, and Oaks are the principal feature of the mixed woods which clothe its low, rocky hills. When the Arboretum was founded in 1872, the Oak trees, through poverty of soil and excessive pasturage, showed marked signs of deterioration, many of them were stag-headed and dying at the top. Professor C. S. Sargent submitted them to the Des Cars' system of pruning, which consists of thinning out the lesser and pollarding the main branches. The beneficial result of this treatment is remarkable, especially among the White Oaks; indeed, it is difficult to tell without close inspection that they have been submitted to drastic pruning. In addition to the native species all that will withstand the climate are flourishing and there are trees now sixty feet and more tall, raised from seeds planted about fifty years ago. The idea is current that Oaks grow slowly, but the experience of the Arboretum is that they grow faster than the majority of hardwood trees. The erroneous notion of slow growth is probably responsible for their being much neglected by nurserymen. Their beauty as specimen trees for lawn and meadow is obvious to all, and their value as roadside trees is well demonstrated by the magnificent avenues of Red Oak which line the Parkway in the vicinity of Jamaica Pond. The best way of raising Oaks is by planting the acorns in flats so soon as they are ripe and transplanting the seedlings when a few inches high. As Oaks form a stout tap-rot, it is necessary to transplant them frequently in order to develop a fibrous root system. If properly grown from their youth, most of the Oaks transplant with ease but some, the common White Oak in particular, are notoriously difficult to move. Oaks, with their stout boles, rugged bark, massive branches and widespreading crowns, are beautiful at all seasons of the year. In the brilliancy of their autumn tints they are not excelled by any trees, and the soft greens, greys and pinks of their unfolding foliage and flowers is one of spring's greatest delights.

Roses at the Lord Mayor's Banquet.—Messrs. Benjamin R. Cant and Sons, Ltd., were again honoured this year by supplying the cut Roses for the floral decorations at the Lord Mayor's Banquet, at the Guildhall, on November 9. The principal varieties supplied were Shot Silk, Emma Wright, Madame Butterfly, Mrs. Beatty, Ophelia, Padre, Etoile de Hollande, Los Angeles and Diana Cant.

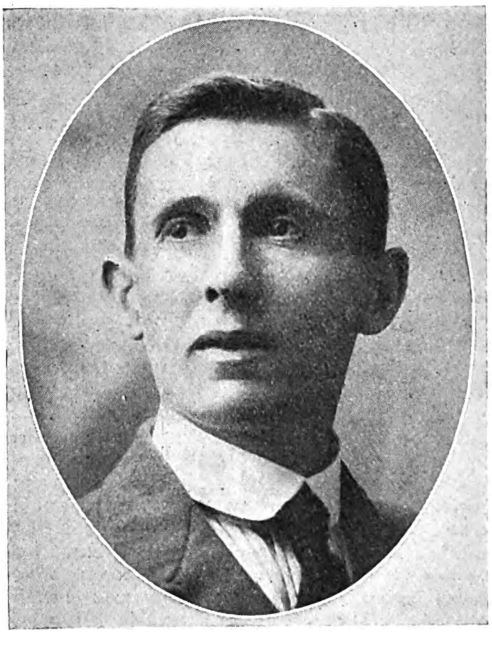
Iris Society.—The seventh Annual General Meeting of this Society will be held at the Grosvenor Hotel, Victoria Street, S.W.1, on Wednesday, November 20, at 6.15 p.m. The meeting will be followed by Dinner at 7.45 p.m. (morning dress), at 10s. 6d. per head, exclusive of wines.

Storing Brussels Sprouts.—Although we have no need to store Brussels Sprouts during the winter in this country, such a need exists in the colder parts of the United States of America, where the advice given is to store them in much the same way as Cabbages, *i.e.*, cut them to the ground, set them upright, closely together, without crowding, and lightly cover them (in a cellar ?) with seaweed or other light, coarse material. A heavy covering must be avoided, and although light freezing will not injure the crop, the Sprouts must not be handled while frozen; alternate freezing and thawing is ruinous.

British Carnation Society.—This Society's Autumn Floral Meeting will be held at the Royal Horticultural Society's Hall on November 20 and 21; the Annual Dinner will be held at the Restaurant Frascati, on November 20, at 6.30 for 7 p.m. Visitors to these functions are reminded that the railway companies offer cheap fares to London on these dates from many centres; further information may be obtained from the Hon. Secretary, Mr. F. W. Alesworth, 17, Avenue Road, Isleworth, or from the railway companies.

National Playing Fields Association.—The Annual Dinner of the National Playing Fields Association took place at the Hotel Cecil on November 12, the Duke of York presiding. In his speech, the Duke referred to the fact that the Association now had forty-three county branches and numerous local branches, and that a National Committee had been set up in Scotland, a branch having also been formed in Northern Ireland. A lay-out department had been established, to give local authorities expert advice in the designing of recreation grounds. Six-hundred-and-fifty gifts of land had been received, and many donations in money, including £200,000 from the Carnegie Trustees. One of the many schemes on foot would ensure the provision of large playing fields in East London, to which Mr. Samuel Courtauld had guaranteed £10,000.

Mr. James M. Grant.—Born at Rothie-Norman, Aberdeenshire, where his father was gardener for over forty years, Mr. James M. Grant already had a good knowledge of plants ere he commenced his gardening career at Aberlour House, Banffshire, where he served for five years, gaining a good all-round experience, both outside and under glass. After leaving Aberlour House he went to Houston House Gardens, Renfrewshire, as journeyman, where the cultivation of vegetables was carried on skilfully, and where fruits under glass were grown well and exhibited successfully at Glasgow. Seeking further experience, Mr. Grant obtained a post in the Edinburgh Botanic Garden, under the late Professor Sir Isaac Bayley Balfour; here he passed through the various departments and attended the classes arranged for young gardeners. The war came, and he served in France but returned to Edinburgh on the cessation of hostilities. Very soon, however, he was appointed to the charge of the trees and shrubs in the Canadian Government Park, at Niagara Falls. In 1921 he returned from Canada to take charge of the late Mr. Osgood McKenzie's gardens at Invereive, Pooleive, Ross-shire, where the collection of trees and shrubs was a particularly good one. Later, Mr. Grant came south to become gardener to W. J. H. Whittall, Esq., at Grayswood Hill, Haslemere, where also there is an excellent collection of the rarer trees and shrubs. At Grayswood Hill, Mr. Grant has carried out considerable alterations and added a goodly collection of Liliums. A very interesting feature of the Grayswood estate is a large orchard, on the greensand, containing over two-hundred-and-thirty varieties of Apples; Mr. Whittall takes a very keen interest in this orchard and at each of the past three Fruit Shows held by the Royal Horticultural Society, a Hogg Memorial Medal has been awarded to collections of fruits from it. This orchard is probably unique in regard to the number of varieties of Apples grown in a private establishment.



MR. JAMES M. GRANT.

Distribution of Tung-oil Seeds from Kew.—The Empire Marketing Board has, we learn, approved a grant to the Royal Botanic Gardens, Kew, for the purpose of distributing Tung-oil seeds to various parts of the British Empire with a view to encouraging its production within the Empire. China had, until recently, the monopoly of the Tung-oil production, but since the war it has been produced successfully in America. As the demand for Tung-oil, an essential ingredient of certain types of varnish, is increasing, and the supplies from China fluctuate greatly and are of irregular quality, seeds have been distributed from Kew to various countries throughout the Empire, and promising trials in its production have been carried out in Kenya, Australia, New Zealand, South Africa, India, Ceylon, Assam, the West Indies, Malaya, Burma, Hong-Kong, Cyprus, Tanganyika and Palestine. The grant by the Empire Marketing Board will provide for the further distribution of seeds from Kew, and for the purchase of Tung fruits for experimental purposes in Great Britain.

Royal Horticultural Society of Aberdeen.—The Annual Meeting of this Society was held in Aberdeen on Saturday, November 9. Mr. W. B. Clark, Superintendent of Aberdeen's city parks, occupied the chair. The annual report referred to in our issue of the 2nd inst., was read and adopted. Lord Provost Rust, the newly-elected civic head of the city, was elected Honorary President, and the Vice-Honorary Presidents were re-elected. Sir Thomas Jaffrey, who has been a warm friend to the Society, was reappointed Chairman of Directors, and Mr. J. B. Rennett will continue to look after the financial and secretarial duties. There were seven vacancies to fill in the directorate, the rules demanding the retirement of so many directors annually. A vote, taken by ballot, resulted in the following seven gentlemen being elected: Messrs. William Cumming, John Cameron, George Tocher, James McDonald, George Harper, Frank Fernie and James Duncan.

New York Garden Competition.—The increasing interest taken in gardening in the United States is reflected in garden competitions, many of which have been held during this year. According to *Horticulture* (America), one of the most extensive of these competitions was under the direction of the *New York World*, and carried entries reaching a total of 4,200. An idea of the magnitude of the entries may be had from the fact that twenty-four judges, travelling in teams of three, required three days in order to visit the gardens selected by a previous elimination committee. More than seven hundred local prizes were awarded. Mr. J. I. Lyle, of West Seventh Street, Plainfield, New Jersey, was the winner of the first prize award in the open class which included gardens of 15,000 square feet or more. In the class limited to smaller gardens, Mr. Charles Johnson, Euclid Street, Forest Hills, New York, was first prize winner.

"The Flowering Plants of South Africa."—The plants figured and described in No. 34, Vol. IX, of *The Flowering Plants of South Africa*, recently issued, are Exochaenium grande (t. 331), Kleinia articulata (t. 332), Aloe africana (t. 333), Pavonia Meyeri (t. 334), Pelargonium longifolium var. longiflorum (t. 335), Loranthus rubromarginatus (t. 336), Gladiolus Ludwigii (t. 337), Sparaxis bulbifera var. violacea (t. 338), Melasma orobanchoides (t. 339), and Kniphofia linearifolia (t. 340). Exochaenium grande is the first South African member of Gentianaceae figured in this work, although nine genera of this Natural Order and about one hundred species are recorded as occurring in South Africa, the largest genus, with over seventy species, being Sebaea. The eleven species of Exochaenium recorded are all tropical African, E. grande extending into South Africa. It is an annual, common in grass veld, with biscuit-yellow flowers, and it is suggested it might appropriately be called the South African Primrose. If South Africa must have a Primrose no doubt this subject is a suitable claimant to the title, as there is a superficial likeness between its flowers and those of our Primrose, although there the likeness finishes. The dividing line between Senecio and Kleinia is very obscure, and some authorities consider the latter should be absorbed by the former, but in the work under review the known name of Kleinia articulata, a plant of fleshy growth and of no horticultural merit other than as a novelty, is used in preference to the adoption of Senecio as the generic name. Aloe africana, which has large, saw-edged, stout and thick leaves, and produces large, closely-packed spikes of tubular, orange-yellow flowers, is confined to the coastal belt of the Cape Province, and occurs plentifully around Port Elizabeth and Uitenhage; it is figured in the *Botanical Magazine*, t. 2,517. The Natural Order Malvaceae is represented for the first time in *The Flowering Plants of South Africa* by Pavonia Meyeri, an attractive sub-herbaceous plant which attains a height of up to four feet, has highly aromatic foliage and dainty, pale pink flowers, and grows in the vicinity of water and in the shade of trees near Pretoria, in the Fountains Valley. Pelargonium longifolium var. longiflorum belongs to the section Hoarea of the genus, the members of which are stemless, have tuberous roots and four- or five-petalled flowers. It is a curious plant but not very ornamental. Loranthus rubromarginatus is a curious parasitic plant, related to Viscum (Mistleto), not particular as to its host, and recorded as parasitic on several species of trees. It is very conspicuous when in full bloom, its long, tubular, reddish flowers being produced in clusters along the stems of the host plant. The green bracts are very conspicuous in the flower spikes of Gladiolus Ludwigii, and as the flowers are dull creamy-lavender, this species does not compare favourably with many others. Sparaxis bulbifera var. violacea, however, is a charming plant of diminutive stature and bears rather large, rich rosy-purple flowers. S. bulbifera varies considerably in the colour of its flowers, but the type is stated to be yellow. Melasma orobanchoides is a parasitic Schrophulariad. Dr. Bolus recorded it as parasitic on a species of Rhus, while the specimen from which the plate was prepared was found on the roots of Hypoestes verticillaris. It has also been recorded as parasitic on cultivated crops, notably Legumes, and is regarded as a potential danger to growers of Leguminous crops. Kniphofia linearifolia carries its tubular flowers, opening reddish and changing to yellow with age, in a dense head at the summit of a leafless, erect stalk 30 cm. long; it would not appear to be of much garden value.

Swanley Horticultural College.—An ordinary General Meeting of the members of the Horticultural College, Swanley, will be held at 29, Bryanston Court, Upper George Street, London, W.1, on Tuesday, November 19, at 4 p.m.

Appointments for the Ensuing Week.—Monday, November 18: Harrogate and District Horticultural Association's meeting; National Chrysanthemum Society's Floral and Executive Committees meet. Tuesday, November 19: Royal Horticultural Society's Nut Competition; Winchester Horticultural Society's meeting. Wednesday, November 20: British Carnation Society's Show (two days); Newcastle and District Horticultural Society's Chrysanthemum Show (two days); Hull and East Riding Chrysanthemum Society's Exhibition (two days); Harrogate and District Horticultural Association's Show (two days); Ayr Chrysanthemum Society's Exhibition; Wimbledon Gardeners' Society's meeting. Thursday, November 21: Ipswich Gardeners' Association's meeting; Norfolk and Norwich Horticultural Society's Chrysanthemum Show (three days). Friday, November 22: Dundee Horticultural Society's Chrysanthemum Exhibition (two days). Saturday, November 23: Leeds Paxton Society's Potato Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Preservation of Dahlia Roots.*—Being fond of good Dahlias, and grieved at the frequent losses that come under my notice, I beg to commend to the attention of those who too often have to lament the loss of their favourites, the following effective method of preserving their roots. The tops being killed by the autumn frosts, and thus become unsightly, must be cut away, leaving the roots undisturbed for several weeks in order to feed the nascent buds destined to break the following spring. For, if at the time of removing the plants from the ground these buds are immature, there is great probability that the tubers will perish before the spring, or should their vitality remain, there will be found a difficulty, if not an impossibility of getting them to "break." The next business is to lift the plants from the ground, and in doing this the greatest care should be taken to preserve their fibrous roots, for the plants require constant nourishment. A number of these rootlets will, however, under the most careful handling, be broken off, and the supply of sap interrupted until new roots are made; but with those plants that have well-swollen buds their reproduction is soon effected. When the tubers are raised from the ground they should immediately be transferred to their winter quarters, where their fibrous roots must be carefully spread upon a thin layer of sand or earth, and at once covered with about an inch of the same, leaving the greater portion of the tuber bare. During winter they should be kept slightly moistened. For wintering these tubers there is, perhaps (unless an especial place is provided for them), no better place than under the stage of a cool greenhouse; but, whatever place may be assigned them, it is indispensable that it admits a moderate amount of light; is kept cool, but above the freezing point, and that the atmosphere is such as suits growing plants generally; alike free from both saturation and dryness, which will with equal certainty, engender putrefaction.—*W.*, *Gard. Chron.*, *November* 18, 1854.

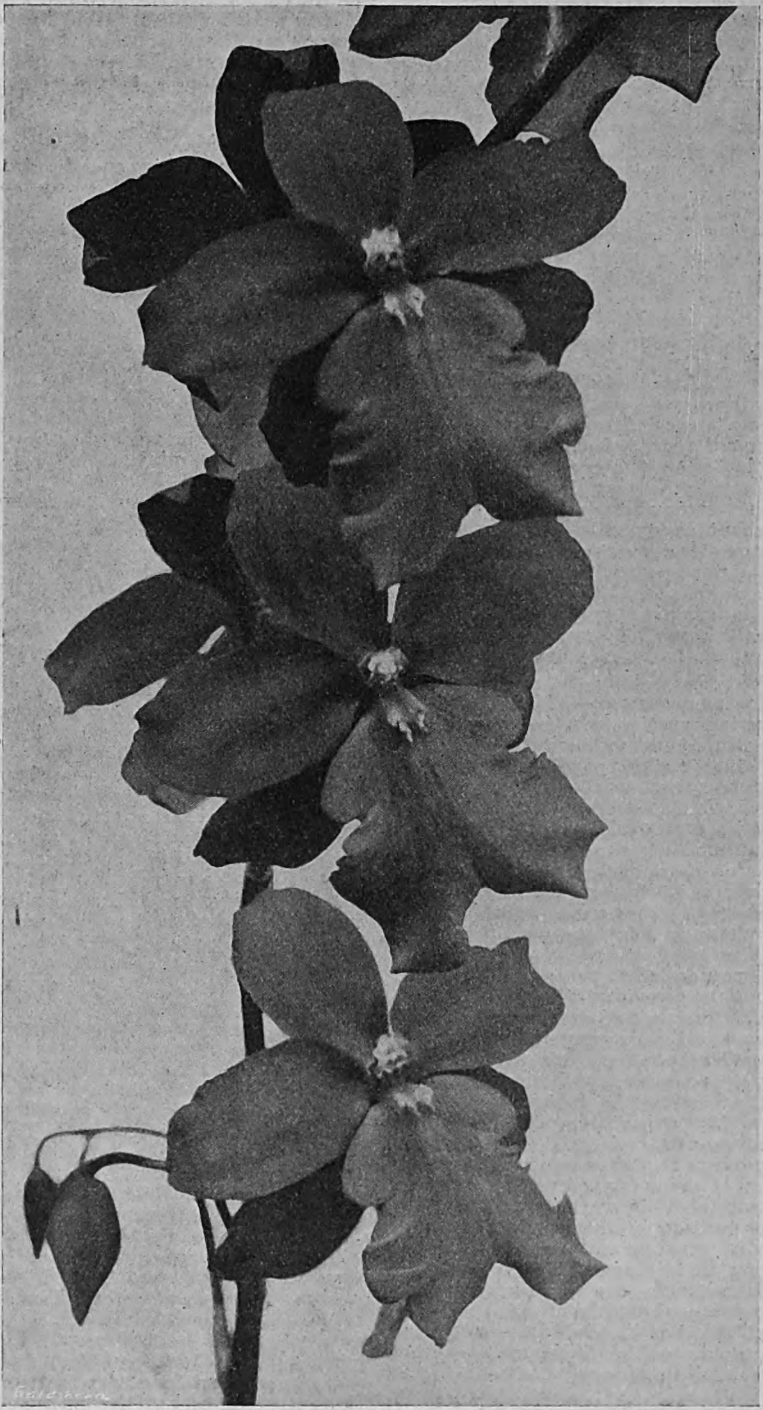


FIG. 173.—VUYLSTEKEARA ETNA, STAMPERLAND VAR.

R.H.S. First Class Certificate, November 5; flowers crimson and cerise. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly (see p. 372).

Publications Received.—*Die Gartenstauden* (Lieferung 2). By H. R. Wehrhahn. In about ten parts, price of each 5.20 Rm. Berlin, Verlag von Paul Parey.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Aerides, Vandas and Angraecums.—These warm-house Orchids, which revel in plenty of heat and moisture during the summer and autumn months, are now approaching the end of their growing season and do not require so much moisture, either in the atmosphere or at the roots. The amount afforded should be gradually reduced as the distinct, white film covers the roots; when this is accomplished, very little water will suffice to prevent the leaves shrivelling and keep the plants in a normally plump condition. Sufficient air should be admitted on all favourable occasions to secure growths of firm texture; this, with exposure to all the light available at this season, should assist in hardening the growths and so enable the plants to pass through the dull winter months successfully. Soft and flabby growths prove easy victims to the unsightly blackspot disease. Many other occupants of the warm house, such as Acinetas, Barkerias, Stanhopeas, Mormodes, etc., will, on completion of their seasonal growth, only require watering at long intervals to keep them in a plump condition during the partial resting period. Opportunity should be taken to thoroughly overhaul the plants at this season, and if scale or other insect pests are detected they should be removed with the aid of a small brush and sponge and a safe solution of an approved insecticide, care being taken to avoid any injury to the "eyes" or growing points at the base of the pseudo-bulbs, also not to injure the leaves by excessive rubbing.

Dendrobium acuminatum.—This attractive summer-flowering species requires very little shade at any time, and to plants now in full growth, the lightest position possible in the warm-house should be given, and a free circulation of air maintained on all favourable occasions. Large quantities of water are not required at any time, but moisture should be afforded to the roots at this stage each time the compost approaches dryness. When growth is completed, very little water, at long intervals, should suffice to keep the plants in a healthy condition until the flower spikes are observed growing from the apices of the pseudo-bulbs, when an increased quantity should be given each time the compost becomes dry. During the warmer months of the year frequent light syringings with tepid water is beneficial, but at this season light spraying only should be given on favourable bright mornings so as to allow the foliage to become dry before night. Other Dendrobiums which are still in full growth, such as D. Brymerianum and the tall-growing D. Dalhousieanum, together with members of the evergreen section, such as D. densiflorum and its varieties, should be given a light position in the warm house and encouraged by generous treatment to assist in building up their pseudo-bulbs so soon as possible. When these are complete, cooler and drier conditions should be afforded them in the intermediate house, and just sufficient moisture applied to the roots to keep the pseudo-bulbs in a plump condition.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Pruning Fruit Trees.—To become quite competent in the art of pruning hardy fruit trees it is absolutely essential that the pruner should be thoroughly acquainted with the whole make-up of the tree. The nature of the soil, too, in which the tree is growing should have due consideration, for it is obvious that a tree or bush growing in a deep, fertile loam should be treated differently from the same variety growing in a rather poor soil. The pruner should realise there can be no hard and fast method of pruning. If he has a knowledge of the rootstock on which his trees are growing, so much the better. It is clear, from the pruning trials at East Malling, that the habit of the tree, its precocity, its fruitfulness, its fruiting season, its health, and in consequence, its power of resisting disease, can all be influenced by the rootstock. He should realise, too, that each variety has its own habit of growth and fruiting, and to achieve the maximum results, the pruning should be adapted to the variety. Pruning delays fruiting, but increases the size of the fruits and decreases the liability of diseases such as scab, canker and mildew. For the production of larger fruits on old trees, the judicious thinning of the branches becomes more and more justified with age.

Pruning Bush Apples and Pears.—The pruning of these trees is one of the most interesting and important of garden operations. It is an operation which calls for close study and much foresight, as it is absolutely essential that each variety, and in many cases each tree, should be studied, and varied pruning methods adopted, to suit the habit and fruiting of each. The chief objects of pruning are to assist the tree to attain any desired form, to encourage the formation of fruit buds, and to improve the flavour, quality and size of the fruits by admitting air and sunlight to all parts of the tree. The method of pruning should change with the development of the tree. For the first four or five years after planting, the aim of the cultivator should be to build up the main branch system of the tree. Then follows a period of about the same number of years, in which the head of the tree continues to develop, but the aim of the pruner is to bring the tree into a crop-bearing state. So soon as the tree has been formed and has commenced to crop, the first and second methods of pruning should gradually give place to the thinning out of superfluous branches, and to judicious manuring, to ensure sufficient vigour for the production of a healthy tree, and heavy crops of large fruits throughout a long life. In the first stage of the young tree the branches should be well-spaced out, and the centre of the tree kept open to admit all the sunlight possible, and to facilitate the operation of spraying and the perfect development of spur-growths and fruits. This spacing out should not be carried to extremes, or valuable space may be lost, but a distance of sixteen to eighteen inches should be allowed from tip to tip of the branches when they have grown to a length of four feet. The leader shoots, at this time, should be cut back to two prominent side buds, twelve to fifteen inches above last year's point of pruning; the buds should produce strong growths, and thus form two fruiting branches where the circumference is greatest. At all other times the pruning of the leader shoots should be to an outside bud, or to a bud pointing in the direction the grower wishes the future growth to take. The direction of the future shoot can be influenced by the way in which the cut is made, whether close to, or slightly above the bud; if close to the bud the shoot will assume much the same direction as the portion cut away; but if an inch or so of stub is left above the bud, the future growth will assume an outward angle, and in very upright-growing trees this method is advantageous. All side-shoots, or laterals, formed on last year's wood should be cut back to form fruiting spurs, and the number of buds retained should vary according to the strength of the shoot. Those situated nearest the top will be strongest and should be pruned rather more lightly than those further back. The strongest should be cut back to four visible eyes, the remainder to three or two, according to their strength. Usually, the top two eyes on the strongest shoots will grow out, but the eyes immediately behind these will become "dards" (prospective, but immature, fruit buds). The object in the next year's pruning is to stimulate these dards, and convert them into fruit buds. The safest way to accomplish this is to prune each of the shoots back to one visible eye which will act as a sap-drawer and safety-valve while the dards are being stimulated into fruit buds. If this pruning is too light, say, to two or three eyes, the dards remain as they were, undeveloped, or may even die out. Once the dards are converted into fruit buds, the shoots acting as safety-valves may still be pruned closely or removed altogether. Wood shoots often arise from fully developed fruit spurs. These should be cut back in the same manner, to one visible eye. This eye will grow out and act as a sap-drawer, and use up superfluous food-stuffs, while the dards and fruit buds are being stimulated, but not forced into growth. Every branch should be treated like a cordon, but every tree should be treated on its own merits, and due consideration taken of its behaviour to last year's pruning.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Eucharis grandiflora.—At one time no stove was considered complete unless this favourite old plant was included in the collection, but now it is by no means so extensively grown. However, it is a very useful subject to grow where a supply of white flowers is in demand, a point in its favour being that it may be had in flower more or less all the year round. This is effected by resting the plants at intervals by keeping them somewhat on the dry side and in a slightly lower temperature, but in both conditions moderation is to be recommended. E. grandiflora is an evergreen, therefore it should not be dried off completely. Plants that have been rested may be introduced to a warm house, preferably one in which ample bottom-heat can be maintained. It succeeds either grown in pots or planted out in borders near the hot-water pipes. I have seen very good results obtained from the latter method. This plant, when in full growth, enjoys a temperature of 65° to 70°, and when plunged, a bottom heat of 80° is to be recommended.

Climbing Plants.—It is imperative at this season of the year to secure the maximum amount of light for plants growing in structures where climbing plants are allowed to ramble at will during the summer months, therefore it may be necessary to thin out and tie in the shoots of any climbing plants that are all overcrowded. At the same time, any insect pests on the plants should be dealt with and when opportunity occurs scrub down all the glass and woodwork.

Camellias.—When in good health Camellias often set far too many flower buds and if this happens the clusters should be thinned to a single bud. Bud dropping is sometimes caused by some cultural error, such as excessive dryness at the roots, therefore the soil should be kept in an even state of moistness.

Freesias.—The earliest Freesias are now growing freely, and to prevent the young shoots being broken they should be supported by placing four neat stakes in each receptacle, and tying Raffia around these at intervals as required. The plants should be grown under cool conditions and so near the roof-glass as possible. A little liquid manure, given alternately with clear water, should prove helpful to the roots. The later plants should be grown so sturdily as possible by avoiding high temperatures and admitting air on all possible occasions.

Codiaeums (Crotons).—Where shading has been used on houses in which Codiaeums are growing during the summer months, this should be removed. The plants need all the light possible from now onwards, and by judicious feeding of the roots with liquid manure, which should be applied each week, the development and colouring of the foliage will be assisted.

Anchusa italica.—This makes an excellent subject for the decoration of the conservatory or unheated greenhouse. Plants that have been raised from seeds should be lifted and placed in the most suitable-sized pots, plunging the receptacles out-of-doors until they are required. They should flower several weeks before those growing in the open garden. Do not try to force this plant in strong heat, as this may only result in failure.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House.—If very early forcing is contemplated, the house usually devoted to this work should be cleansed, as the time is at hand for placing the trees in position. When selecting Peaches and Nectarines for this purpose, only early-fruiting varieties should be chosen, and the trees should be well set with buds and have thoroughly ripe growths; the pots—not too large—should be well filled with healthy roots. Duke of York and James Walker are considered good forcing Peaches, while Cardinal and Early Rivers are good Nectarines for this purpose. The heads of the trees should be kept well up to the glass and allowed plenty of room for their full development; mild bottom-heat being a great help, standing them on inverted pots, or bricks, will allow for the placing of fermenting leaves about them. If well disbudded in the spring and all superfluous shoots were removed after the crop was gathered, the trees should require very little pruning; still, they should be looked over, as some of the strong shoots may be the better for being cut back to triple buds, twelve or fifteen inches from their base, while others may require hard pruning to ensure a relay of young growths for next season. Weak side-shoots should be left full length until the fruits are set and the young growths are growing freely. Care in the retention of wood-buds should not be overlooked as it is easy to render a growth useless by their removal. When this work is finished the house cannot be kept too cool and airy when the weather is not severe, but the roots of the trees should never feel the lack of water.

Potting Fruit Trees.—If potting has been neglected, it is not too late to complete this work. Maiden trees may still be lifted and potted and plunged in open borders. In the selection of orchard house trees no second class variety should be chosen, as it is better to have a dozen trees of one good sort than a dozen distinct varieties. Figs in pots should be stored in a place where they can be kept fairly dry and safe from frost.

THE FLOWER GARDEN.

By R. FINDLAY, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Planting Trees and Shrubs.—November is the most suitable month of the whole year in which to plant deciduous trees and shrubs, therefore planting operations should be the most important occupation at the present time. More trees and shrubs are ruined by bad planting than by by any other means. Provided the beds or borders have been trenched as previously advised holes should be opened wide enough to accommodate the roots without in any way twisting or doubling them up. If the soil is poor, have a supply of old loam and leaf-soil at hand and give each tree or shrub a plentiful supply when planting. Have everything in readiness for planting before the trees arrive, and endeavour to complete the planting so expeditiously as possible, so that they may have the advantage of the warmth left in the soil, and be in position before work is held up by autumn rains or frosts. Where space permits, a Heath garden will be found of great interest at practically all seasons of the year. There are numerous Heaths available, and if a wise selection is made there should be bloom practically throughout the year. A sandy loam is as satisfactory for the majority of these Heaths as a peaty soil. On soils of a heavy texture it is advisable to incorporate a plentiful supply of decayed leaves and sharp sand as the site is being prepared; needless to state, these Heaths will not grow on soils charged with lime, with the exception of Erica carnea and its numerous hybrids; which do not resent a certain amount of lime in the oil. E. carnea and its numerous varieties give a continuous display for the first five months of the year, and may be supplemented by E. arborea, E. a. var. alpina and E. mediterranea and its varieties. These are followed during the summer months by numerous varieties of E. cinerea and then by varieties of the common Heather, of which there are many good sorts. For the autumn there is E. vagans and its several varieties. These usually bloom well into November and by that time the colour is beginning to show in the E. carnea section again.

Lobelias.—Herbaceous Lobelias are fairly hardy, but unless under specially favourable conditions they should be lifted about this time every year and placed in cold frames for the winter, packing a mixture of leaf-soil and sharp sand about their roots. Plenty of air should be admitted to them on all favourable occasions, and excessive moisture and frosts should be guarded against.

Montbretias.—The newer hybrid Montbretias should be lifted and the corms wintered in frames from which frost can be excluded. A great advance has been made during recent years in these useful border plants, and they are well worth the extra care required to carry them safely through the winter.

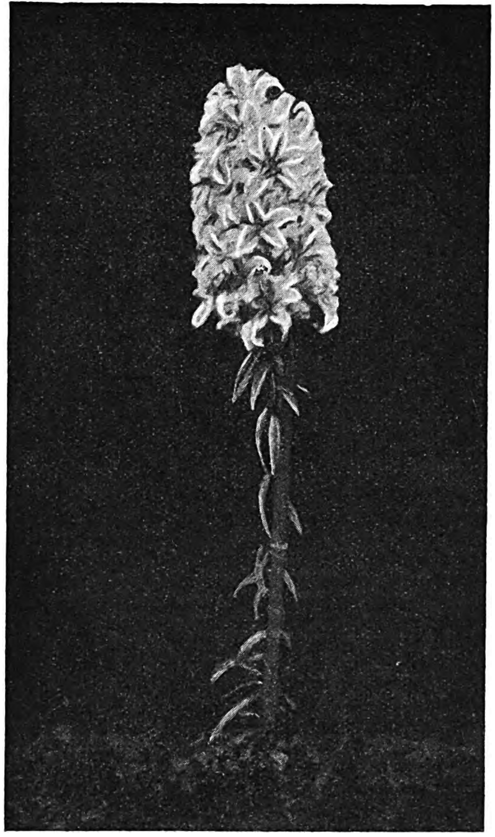


FIG. 174.—LILIUM AURATUM AT CRUMPSALL.
(see p. 391.)

Kniphofias.—These handsome plants contribute much to the brightness of the garden during late summer. In the north, and on wet, cold soils they, unfortunately, do not withstand the winter well without some protection; therefore it is advisable before the approach of hard weather to give them some protection. A few Spruce or Fir boughs around each clump, and with dry Bracken worked through them, should afford sufficient protection, and this method is neater than that of placing leaves around the crowns, as these are apt to be blown about.

THE KITCHEN GARDEN.

By W. G. STAWARD, Gardener to LADY MARGARET RYDER, Knowle Gardens, Dunster, Somerset.

Stachys tuberifera.—The tubers of Stachys tuberifera may now be lifted and stored in a cool, dry place, care being taken when lifting them as, being so small, they are easily overlooked. The tubers will keep for a considerable time if placed in a heap and covered with some thick material to exclude light and air.

Herbs.—Roots of Mint should be lifted and placed in boxes or pots, ready to be introduced into heat. Cuttings of Thyme and Sage may be inserted in five-inch pots; one dozen cuttings in each in fairly sandy soil. These should be well rooted by the end of March, when they may be planted out.

Winter Salads.—Where it is necessary to maintain a supply of so many salad plants as possible, an occasional sowing of Mustard and Cress should be made. Regular and further plantings of Lettuces should be made at once, filling any spare frames and boxes with them. Chicory may be lifted and the roots stored and placed in the forcing house as required.

General Work.—Continue to clear off all spent crops and tidy up the ground as it becomes vacant in preparation for trenching and digging.

Endive.—Plants that are fully grown may now be lifted and placed in frames fairly closely together. Others in the open may be tied up with raffia to bleach the centres, or nine-inch pots may be placed over them for the same purpose.

Winter Greens.—These, and especially Brussels Sprouts, should be examined and cleared of decayed leaves so that air may circulate freely between the plants and prevent damping and rotting of the buttons. The beds should be kept clear of weeds.

FOR NORTHERN GARDENERS.

By JOHN HILL, Gardener to ANDREW ARTHUR, Esq., Rosemount, Monkton, Ayrshire.

Asparagus Beds.—As the growths show signs of ripening off, whether by the action of frost, or naturally, they should be cut down, all weeds cleared, and a good heavy dressing of manure spread over the beds and dividing alleys; this affords a certain amount of protection in extreme weather, and provides nourishment at the same time.

Globe Artichokes.—These are rather tender in cold districts, and should be given a mulch to protect them. Very fresh strawy manure is suitable for this purpose in most cases, but on clay soils sifted ash is, perhaps, preferable, keeping the crowns comparatively dry, and at the same time protecting them from slugs. A few young crowns should be lifted, potted up, and placed in frames to ensure the maintenance of a stock should the winter be so severe as to destroy those in the beds.

Autumn-planted Cabbages.—Where there is difficulty in wintering these, and it has been fairly general in recent years, I find that a small mound of sifted ash placed around each plant is of the greatest assistance in bringing the plants safely through the winter. This protects them from slugs and keeps them steady where exposed to rough winds.

Fire Ash for Mulching.—Pyrethrums, Delphiniums and all plants of a herbaceous kind noted in previous winters as suffering from the ravages of slugs, should have a layer of sifted fire ash placed over the crowns, so soon as the plants are cut back. This also helps to improve the condition of heavy land if applied for a number of years, but the ash should be passed through a riddle of not more than half-an-inch mesh.

Early-flowering Chrysanthemums.—Sufficient plants of each variety should be lifted for stock, as in but few places can they be depended upon to winter well out-of-doors. Those selected should be shaken free of most of the soil and laid beneath frame lights or in an empty glass-house to dry. When well-dried, they should be placed in boxes or on the floor of a greenhouse and a little light soil placed among the roots, but not so much as to bury the collars of the stools; leaf-mould and sand in equal parts is ideal for this purpose. Very little water should be given them during the winter months, only enough to prevent excessive dryness being necessary, as cuttings are seldom wanted until March.

ALPINE GARDEN.

TWO PROSTRATE LINUMS.

For a choice position in the rock garden, the stony soil being sharply-drained and the aspect sunny, there are no pleasanter Flaxes of lowly growth than Linum alpinum and L. salsoloides var. nanum. The former comes very near to L. perenne, but it is much more slender in its stems and these, if not perfectly prostrate, have a tendency to spread laterally. The grey-green leaves are extremely fine, in keeping with the frail and delicate growths, and the latter bear at their tips nearly all the summer, loose clusters of flowers which, if not so large as those of L. perenne, are big for the size of the plant. The blossoms are a singularly clear, but pale, china-blue, showing, in my experience, very little variability.

The other plant named above is very unique in its entirely prostrate habit, both leaves and stems being so attenuated and so interwoven in a low, dense mat that they might suggest anything but a Flax. This grey-green, almost emerald, pad of verdure is adorned for several weeks in summer by flowers closely resembling those of the type. But these vase-shaped, pearl-white, dark-eyed blossoms are almost stemless and few plants are more attractive in refinement and dainty elegance than L. s. var. nanum, studded all over with these shell-pale flowers. A dry, hot ledge of very gritty soil is what this little plant enjoys and under such conditions it is quite reasonably hardy. Excessive winter wet it dislikes, and it is always well to keep a few cuttings in reserve for, winter losses apart, these Linums are not long-lived plants. *A. T. J.*

SEMPERVIVELLA ALBA.

I was greatly interested in the note by Mr. Ralph Arnold (p. 303). I may assure him that Sempervivella alba is hardier than he imagines, as it withstood the past winter here, without protection, while so many of our delicate and tender plants died. But one thing I would like to know is the origin of this plant; I have sought it in every way that seems possible, but without success. The source of my own plants is uncertain, therefore some light on the subject would be welcome for I do not like to have "heitmathlose" plants in my collection. *H. Correvon, Chêne-Bourg, Geneva.*

HEERIA ELEGANS.

The trailing growths of Heeria elegans make this subject well suited for the rock garden, and it is a most charming plant for that purpose.

It does not require any special cultural treatment in a lime-free soil to produce, during the summer, the brilliant crimson flowers that adorn it at a time when many of the familiar rock plants are past their best.

Heerias belong to the Natural Order Melastomaceae, but they cannot safely be regarded as hardy, even in mild localities, so that their preservation during the winter should be ensured. *Frederick Gooch.*

PARONYCHIAS.

The Nailworts belong to that strata of garden society which regards virtue above adornment. Thrifty, lowly, quiet and always kindly and respectful to their neighbours, these soberly-dressed little creatures have a winning way about them which appeals to many. Southerners as they are, often dwellers amid the burning aridity of the Ligurian Alps, they endure with commendable courage all the worst that our winters inflict upon them. This, provided they are given the poorest of stony soil, or mere crevices in some flagged walk or stone steps. Even the sun they all do not insist upon, their abounding good nature making the best of the most dismal prospects.

The Paronychias belong to the Natural Order Illebraceae. They are prostrate, creeping, perennial herbs forming dense mats of their finely-woven verdure. The tiny leaves and branches are hairy in all species that have come my way, and the plants may be anything from a grey to silvery-green. If they have no flowers to speak of they make amends for this by enclosing such as they have in silvery-white bracts. These latter, papery and gleaming with a pearly lustre, are by no means unattractive (especially under a pocket lens) and they are on view the greater part of summer and autumn, their delicate tissue blending with the silvered foliage in a soft iridescence.

The names of these gentle plants I have never had the leisure to unravel, but one of the most delightful is stated to be P. capitata, and this may be what I have as P. nivea, more upright than most, with very conspicuous bracts. P. pyrenaica (which is possibly P. serpyllifolia) drapes the end of an old stone trough with a net of silvery verdure finer and closer than that of Arenaria balearica, while matted about some steps in shade and sun are P. argentea and P. polygonifolia. All these names, however, are subject to a revision, which I hope to accomplish some day. Meanwhile, the modest charm of these engaging waifs is alone more than sufficient to justify their claims upon the affections of all who appreciate such things. *J.*

TREES AND SHRUBS.

PIERIS JAPONICA.

It says much for this fine shrub's hardiness that it endured the severe frosts of last winter in many places. Although we touched zero here, the foliage was uninjured and quite a fair number of flowers appeared in their due season. The late Mr. E. C. Buxton had a remarkably fine specimen in his Bettws-y-Coed garden and this bloomed every year with the utmost freedom in spite of the fact that it was open only to the north-east. Behind it, and entirely shading it from all but early morning sun, was an immense Douglas Fir whose outer branches doubtless helped to screen the shrub from frost. These facts may suggest possibilities to many who regard P. japonica as too tender for their locality. It is, however, not so much the shrub itself, but the blooms that are likely to suffer. This species would appear to be almost as hardy as P. floribunda, but the racemes of buds which form in autumn to expand from March, or earlier, to May, have to contend with the trials of winter, while the open blooms are, in their turn, liable to be cut by spring frosts.

P. japonica grows to eight or more feet, making a shapely bush usually well-furnished with branches to the ground. The evergreen, oblanceolate, leathery leaves are narrower and longer than those of the more familiar species mentioned, and of rather a paler green. The flowers are borne in beautiful clusters of pendulous racemes at the extremities of the twigs, the pitcher-shaped corollas, each over a quarter-of-an-inch long, being rosy-pink in the bud, changing to white. When the flowers are over the new growths are very attractive, both leaf and bark being a glossy reddish-bronze, but in this regard the shrub is not so handsome as P. formosa or P. Forestii.

P. japonica needs a light, warm, lime-free loam, preferably with some leaf-mould or peat. I find the best method of propagation is layering, and have had shrubs of this species raised by that means in flower when barely a foot tall. *N. Wales.*

INDOOR PLANTS.

SINNINGIA CAROLINAE.

Although less brilliant in colour than the many hybrids of Sinningia speciosa which, under their popular name of Gloxinia, are extensively cultivated in greenhouses, Sinningia Carolinae will always attract attention when in flower by reason of the quaint appearance of its blooms. It is also of interest to note that it is one of the parents of the bigeneric hybrid Gloxinia Tapeinotes.

S. Carolinae is an easily-grown stove or warm greenhouse herb, growing about fifteen inches high, with somewhat fleshy, square stems, clothed with opposite, ex-stipulate, lanceolate leaves about nine inches long, deep green in colour, tinged when aged, with bronze. The flowers, one-and-a-half inch long, are borne mostly in pairs in the axils of the leaves. The inflated, pouch-like corolla is white, with five yellowish limbs at the gaping mouth, the exterior of the corolla tube being densely covered with slender hairs.

Propagation of this subject is easily effected by cuttings, indeed, adventitious roots develop from the stems, when the plants are grown in the close, moist atmosphere of a stove. If the cuttings are rooted in early spring the plants should flower as they grow during the summer and early autumn. In its early stage of growth, S. Carolinae is unbranched, but towards the end of the season side-growths develop at the base of the stem. For decorative effect, the placing of several plants in each receptacle is recommended, and three plants in a six-inch pot will make a well-furnished specimen. *Jonathan Fiona.*

ARISTOLOCHIA ELEGANS.

Aristolochia elegans is one of the very best of its genus and deserves a place in every stove. It is a species hailing from Brazil and was first introduced to this country about the year 1883.

No description, however good, could quite portray the beauty of its very handsome blossoms. They are solitary, and borne from the axils of the leaves on rather long pedicels. The throat of the perianth tube is a pale greenish-yellow in colour, and the tube opens out into a shallow, heart-shaped cup about four inches in diameter. The background of this is white, and is exquisitely marked with veinings of purplish-brown, gradually shading deeper until they merge into a dark, half-circular band. This is about half-an-inch deep and ends abruptly at the entrance to the tube, showing it off to great advantage. The reniform-cordate leaves are about three inches long and broad, and are borne on petioles from one inch to two inches in length.

Pruning should be attended to each autumn or winter by cutting back severely the season's growth to just a few basal buds near the old stem. An increase of stock can be made quite easily by means of seeds, which the plant sets freely. *F. H. Wright, University Botanic Garden, Cambridge.*

BULB GARDEN.

CROCUS PULCHELLUS.

Crocus pulchellus is one of the most delightful of the autumn-flowering Crocuses, of which far too few are grown in gardens where the conditions are suitable. Like most of the family, C. pulchellus calls for a light soil and a sunny situation in our climate. Given these and a sheltered spot, it is likely to give unbounded delight to all who love the flowers of autumn and who seek to brighten their gardens with such gems as this Crocus. Its flowers are not large, it is true, but they are charming in every way. That this praise is justified may be learned from what Farrer wrote in his *English Rock Garden*, where he calls it "one of the darlings of the family," and adds that it is good enough for the "choicest slopes and beds of the choicest plot." It is of a delightful delicate lavender, beautifully lined and with orange spots at the base.

There is also a lovely white form, and the type varies from seeds. Years ago, in a seaside garden, I had a charming group which owed its being to a few corms sent me from Asia Minor. These plants seeded, and the seedlings were allowed to remain where they sprung up. The result was delightful—an informal group composed of many lovely cups of delicate colouring. Like other autumn-flowering Crocus species, C. pulchellus should be planted in July or early August, in sandy soil, in a sunny place, at a depth of an inch. C. pulchellus is lovely on a sunny rockwork, or in a border, and is a delightful subject for the alpine house. *S. Arnott.*

COLOUR IN THE PLANT WORLD.

Nature is the supreme artist. She is never stingy in the use of colour, yet her effects are always harmonious and free from any suggestion of crudeness. In our flower gardens, in the summer, we can revel in the luxury of colour. When, later in the year, the flowers are dead, we can enjoy the beauty of autumn's golden tints and may pause to speculate awhile about the mystery of colour in the plant world. For colour is mysterious.

We are well aware, of course, of the vitally important part played in the economy of plants by that most important of all plant colouring matters, chlorophyll. It is by virtue of the chemical powers of this remarkable substance when stimulated by sunlight that plants are able to absorb carbon di-oxide from the atmosphere and convert it into sugar. But why is chlorophyll green ? The question is one which science has not yet succeeded in answering. It would seem, so far as the plant is concerned, that the colour is of no importance ; nevertheless, it is very important to mankind and, in a less degree, perhaps, to other animals ; an instance of that wonderful interlocking of phenomena — adaptation to circumstance, perhaps — which is everywhere to be observed in Nature.

Colours are classified by artists as cool and hot, and differ accordingly in their psychological effects. Green is essentially a cool, restful colour. Our eyes are most sensitive to green light, and can work without fatigue with a lower intensity of green light than that of any other colour. The benefit derived from a day spent in the country by the city worker is not due entirely to the fresh air and exercise. His mind has been rested by the constant sight of green fields and green trees. Undoubtedly, if the prevalent colour note of vegetation was red, our mentalities would be quite different from what they actually are.

Yet chlorophyll is so closely related chemically to the red haemoglobin of the blood, that the evolution of a red world, such as some very speculative minds have supposed the planet Mars to be, is not difficult to envisage.

It is gratifying to our vanity to suppose—if our imaginations are equal to the task—that the myriad hues which flowers display are flaunted for our delight. We may, however, be perfectly sure that they play some important part in the life of the plant ; and a plausible supposition is that their function is to attract the insects necessary for fertilisation, although, as a matter of fact, perfume would seem to be a more powerful factor in achieving this end, and the supposition does not seem applicable in all cases. In support of it, however, may be advanced the fact that, while in England, as in other low-lying countries, the majority of flowers are either white or yellow, when we travel to higher altitudes, where insect life is more scanty, the more brilliant and attractive reds and blues begin to become predominant. Many an alpine meadow in Switzerland looks blue from a distance owing to the abundance of Meadow Sage and other plants with blue flowers.

In recent years a great deal of attention has been paid to the question of the chemical composition of the colouring matters of flowers. These are mostly substances of very complex constitution. Some have been synthesised in the laboratory of the chemist ; but by how laborious a process compared with the ease with which plants make these same substances from the simple constituents of the air and soil !

The occurrence of albinism in plants is an interesting phenomenon. Not infrequently one finds a wild flower with apparently white blossoms which normally has coloured ones, although on pressing the albino, the colour sometimes develops as if it was always there, although hidden from sight. That some peculiarity in the soil is not the only, or even the chief, cause of albinism is evident from the fact that these abnormally white flowers are frequently found growing in juxtaposition to coloured ones of the same species. On the other hand, it is certain that the soil does have an effect on the colour of flowers. Blossoms of the blue-flowered variety of Hydrangea hortensis have been found to contain more than twice as much iron as those of the pink-flowered form, indicating the influence of a soil rich in iron. Cultivated plants of this species are often watered with iron salts to facilitate the development of the colour.

Many, indeed, have been the attempts by horticulturists to modify the colour of flowers by introducing various specific substances into the soil, and many wonderful results have been obtained. Black, at one time at any rate, was a colour especially sought after because of its rarity in Nature. It may, however, be doubted whether any perfectly black flowers have ever been produced, the nearest approximations to this colour being very dark shades of purple.

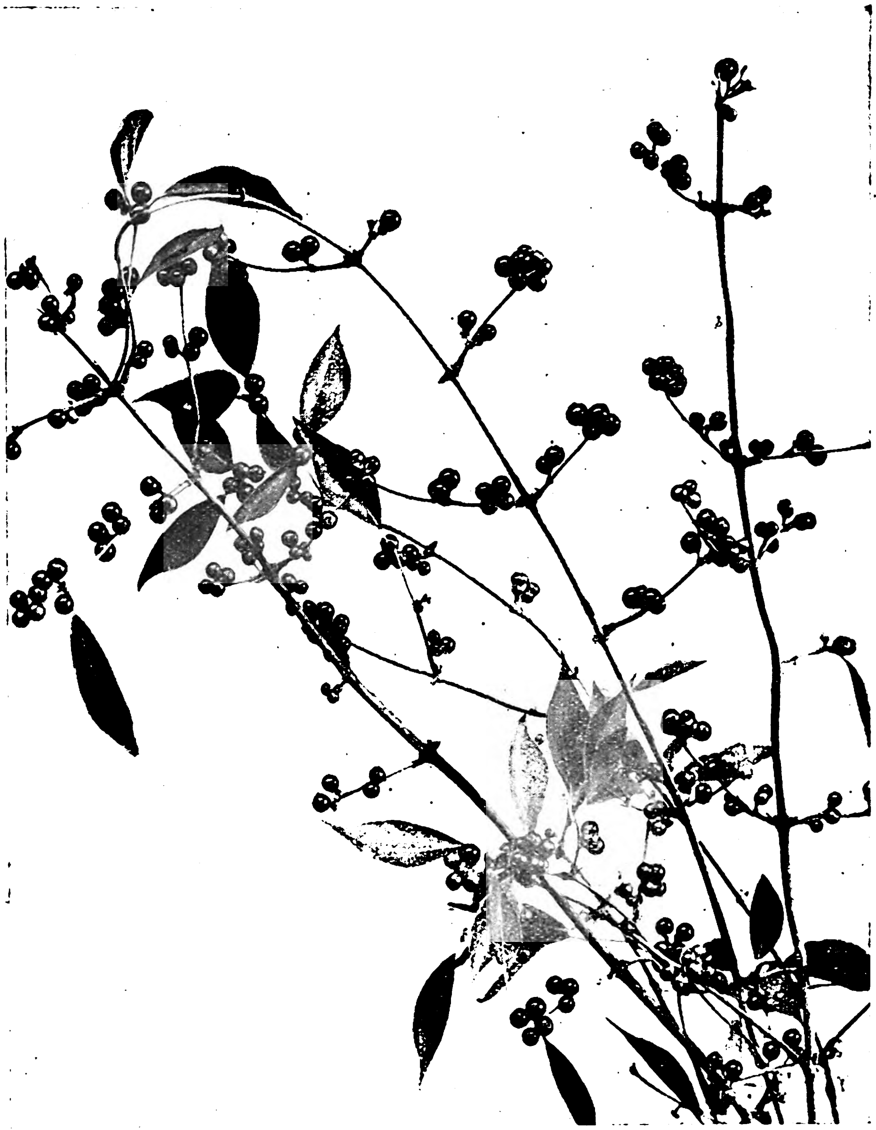


FIG. 175.—LONICERA SP.

R.H.S. Award of Merit, November 5, as Lonicera Hemsleyana. It is not that species, however, but probably L. Maackii var. podocarpa ; it has yet to be determined. Fruits red, semi-transparent. Shown by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Southampton.

(see p. 372)

The colouring matters present in flowers are, chemically of an extremely delicate nature. The colour soon fades ; and I suppose there is no curator of a natural history museum or possessor of a private herbarium who does not regret the fact that, although rapid drying often proves distinctly useful, no entirely satisfactory method of preserving plant-colours has been devised. Nevertheless, mankind has succeeded in obtaining from plants some of the most exquisite colouring matters—dyes and pigments—that are known, and which are still preferred, by those of good taste, to the myriad synthetic dyes and pigments now manufactured from coal tar.

Among useful colouring materials of plant origin, mention may be made of a number of woods, such as Logwood (Haematoxylon campechianum), Fustic (Chlorophora tinctoria), Young Fustic (Rhus Cotinus), Quercitron (Quercus velutina—syn. Q. tinctoria), etc., which have been extensively employed (and still are to some extent) for dyeing woollen and other textiles. Nor must we forget to mention Henna, the powdered leaves of Lawsonia alba, used especially for dyeing living hair.

Most important, however, of colouring matters derived from plants, of which many more might be mentioned, are Indigo and Madder. In the case of the plants producing these, on indication is given by any external sign of their tinctorial properties. The colouring matter is not *contained* within the plant, but is produced from one or other of its constituents by some simple chemical reaction. Indigo is prepared from certain species of Indigofera, plants belonging to the great family of Leguminosae. The leaves contain a peculiar glucoside or sugar compound, called indican, which undergoes fermentation and oxidation, with the production of indigo, when the powdered leaves are mixed with warm water and exposed to the air.

In the case of Madder (Rubia tinctorum), the dye, chiefly alizarin, is produced by fermentation of material contained in the root or when this is boiled with dilute acids or alkalies; and can be obtained in the form of an insoluble pigment, madder-lake, by chemical means.

The chemical composition of indigo and alizarin are both well-known, and these colouring matters are now synthetically manufactured on a large scale. However, the natural products appear to be superior to the artificial ones. The reason is probably the same as that which accounts for the fact that the finest synthetic imitation of a floral perfume falls short of the perfection of fragrance attained by the flower itself—the natural product contains traces of other substances, too small to be detected by analytical means which, nevertheless, modify, in one case the odour, in the other the colour. In the case of madder, it is well-known that other colouring matters are present besides alizarin.

Artists prefer natural madder-lakes to artificial ones on account of the beauty and delicacy of their colour. Speaking the other day to a director of a large British firm of pigment manufacturers, he told me that his firm supplied a certain railway company with natural madder-lake for painting railway trains, the company being prepared to pay the extra cost because the colour was considered to be superior to that of a similar synthetic alizarin-lake—a remarkable preference for a natural colouring matter in an industry where one imagined cost would have preference over aesthetic considerations.

Hotly pressed also by its synthetic rival, indigo still holds its own, reminding us of the truth of the remark with which I commenced these few notes on colour in the plant world, that Nature is the supreme artist. We may copy her, but her works, perhaps, we shall never excel. *H. S. Redgrove, B.Sc.*

NOTICE OF BOOK.

Spanish Gardens.

THIS is a charmingly written and beautifully illustrated book*, and altogether one of the most interesting and attractive productions of its kind we have seen.

The history of Spain is a fascinating tale, and perhaps no country in Europe has experienced such a succession of conquerors of diverse types, or been influenced more by them in turn, especially in regard to architecture. So far as the gardens of Spain are concerned, the Romans at first, and the Moors at the last, would appear more than any to have left their mark. The latter appeared as invaders from the south in the eighth century, and after acting successively as conquerors, rulers and subjects, they were finally expelled in the fifteenth. Thus, as one would expect, it was their dominion for so many years, over the southern parts especially, which had the deepest, most lasting, and to-day most evident influence on its gardens and architecture. In Andalusia the Moorish influence has continued almost unbroken until now.

But after having read and enjoyed this book, one feels that Spanish gardens as represented here, have but little concern with horticulture. In practically all the illustrations it is the work of the architect and artist in stone that dominates the scene. In some of the pictures not even a branch or a leaf is visible. One is led to wonder in the end if the beautifying of the earth with trees and flowers makes any appeal to the Spaniard, or even to the authoress of this book. It gives little evidence of it.

It is not necessary to labour that point or to revive in the least old and barren controversies. Gardening and architecture are two distinct, although allied arts. We can take delight in both, but this book ministers only to the delight in one.

Having written that much, we can unreservedly praise and recommend it. It is a deep pleasure to follow Mrs. Villiers-Stuart through that land of romance. Of romance, indeed, the very names are redolent—Cordova, Granada, Alhambra, Alcazar, Seville! No written story could imbue the reader more thoroughly than this with the atmosphere and genius of Spanish art in relation to the surroundings of its palaces and noble houses.

AUTUMN IN THE GARDEN.

MAY I venture to protest against the dull uniformity of Michaelmas Daisies and Dahlias in our autumn gardens? There really are other plants that may be employed by those who wish to keep a bright and flowery border.

Last winter was a severe one, as we all know, and Fuchsias were cut down to the ground in most places—but did that interfere with their blossoming last summer more profusely than ever? On the contrary, they were more beautiful than before. That charming sub-shrub, Ceratostigma Willmottianum suffered like the Fuchsias, yet, like them, it was a mass of brilliant blue flower heads in September and October, giving an impression of spring beauty more striking than the best of autumnal Gentians now so much in vogue.

The white Crinum Powellii was fuller of flower after having been cut down to the ground, and continued in bloom later than usual, proving its worth in the autumn garden, although it does not continue into October, but as it does not require any special care, it deserves a place both for foliage and flower. There are now good dwarf multiflora Roses, both pink and white flowers, that may be depended upon for autumnal flowering, and for those who prefer them, there are deeper shades. Rodhatte, for instance, will give a sequence of autumn flowers even although it may not be quite first-class in other ways.

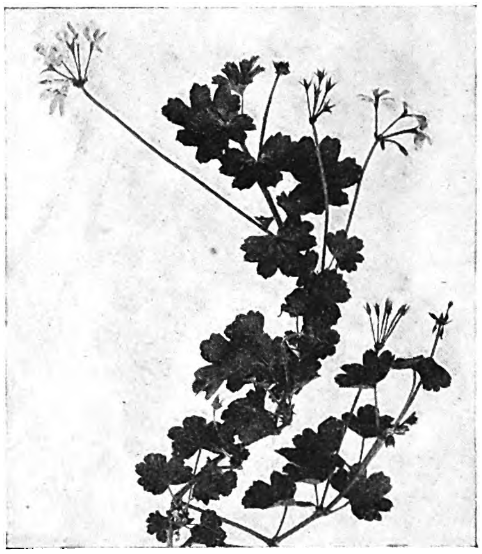


FIG. 176.—TALL GREEN-LEAVED SPORT FROM PELARGONIUM MME. SALLERON.

That best of Olearias, O. oleifolia, should not be forgotten as its pretty, white flowers, and foliage of spring-like green, give quite a summer air to the late autumn garden. It is so superior to O. Haastii that it needs to be better known, as it makes a green and spreading bush without any care or pruning.

I have in my mind's eye a big border planted with irregular, waving lines of Fuchsia Riccartonii and F. macrostemma var. gracilis. The latter should be cut down to the ground each year, but F. Riccartonii may be allowed to grow tall if the winters permit it, and it is in the background. Towards the front, that most indispensable of hardy Fuchsias, Madame Cornellisen, should show its bright flowers with white corollas. Its upright habit and fresh colouring are so cheerful that I am glad to think my old friend Miss Jekyll has saved it from oblivion. There are other good Fuchsias with white corollas, but of dwarfer habit, and all are worth a trial.

Silver-leaved Cinerarias and Centaureas may be used to group with the Ceratostigma or the Crinums; indeed, the energetic gardener will find plants to suit his taste.

There are now several good autumn-flowering Lilies that should be planted, but I write a line in praise of the good old Lilium auratum. But it should be mentioned that the Japanese cut off the roots of this Lily for convenience in packing, and it so happens that this species has perennial roots—not as other Lilies—so that newly imported bulbs should not be allowed to flower the first year, however strong they may be, for they only make fresh roots in autumn and in consequence the bulb dies of exhaustion, unless the flower buds are cut off in the first summer. Hence the idea that this bulb is not hardy. It is not frost, but lack of roots, that kills this lovely Lily, and it enjoys the shelter of the Fuchsias as well as the Azaleas with which it is commonly associated. *Edward H. Woodall, La Selva, Brancolar, Nice.*

NOTES FROM KEW.

OFTEN one of the greatest pleasures of a garden is the uncertainty of what may happen from week to week, or even from day to day. Writing in mid-October, or even later, one would have described the autumn tints as of moderate beauty, the colouring, with a few exceptions, below the average, due, one would suggest, to the long spell of dry weather, and the early falling of some of the leaves.

In less than a fortnight a marvellous change came over the landscape. A considerable amount of rain fell, and an indifferent beginning was changed in a few days to brilliant colouring wherever the eye wandered. Especially fine are the Liquidambars, the Common Beech, the Barberries, the Azaleas, the Pyruses and some of the Elms.

The American Sumach, Rhus cotinoides, is one of the most beautiful and consistent of all autumn colouring trees or shrubs, and always makes a gorgeous display of scarlet, orange-red and golden-yellow. It is worth noting that most brightly-coloured leaves are on bushes planted in rather poor ground. Rhus trichocarpa, a native of Japan, is another Sumach of outstanding merit in autumn; the pinnate leaves assume brilliant shades of deep orange-scarlet and golden-yellow.

The June Berry, Amelanchier canadensis, is a useful specimen lawn tree of moderate dimentions, twenty to thirty feet in height. A profusion of small, white flowers open during April just in advance of the leaves, and in autumn the trees are pictures of striking beauty when the leaves are glowing red.

Pyrus Tschonoskii is a Japanese species of very attractive appearance at the present time (November 1) as it is of pyramidal habit, and the leaves are rich orange and scarlet. Crataegus pinnatifida var. major has pleasing autumnal tints of bronzy-orange, while the tree is very heavily laden with clusters of large, dark red fruits. C. prunifolia is of outstanding merit, forming round-headed trees as wide as high, and at present a glowing mass of orange and crimson, conspicuous from a long distance. The Washington Thorn, C. cordata, is one of the most useful and distinct Thorns in flower and fruit; it is also one of the latest to bloom, the flowers opening in early July, to be followed by small, orange-scarlet fruits produced in profusion. The yellow-fruited Yew, Taxus baccata var. fructu-luteo, is more attractive in fruit than the ordinary variety, as the colour forms a greater contrast to the dark green foliage. It is of more spreading habit than the ordinary form of the Common Yew.

Four species of Koelreuteria are in cultivation at Kew, all natives of the east; three from China and the fourth from Formosa. Two, K. bipinnata and K. formosana, require the protection of a greenhouse at Kew, and the other two, K. apiculata and K. paniculata, are hardy, deciduous trees or large shrubs. K. paniculata was first introduced to British gardens in 1763. Although not much grown it is a very good subject for town gardens, thriving in poor soils and the by-no-means pure air of Battersea Park, for example. At Kew the older introduction is surpassed as a decorative subject both in flower and fruit by K. apiculata, first discovered by Mr. E. H. Wilson in western Szechuan in 1904. Mr. Wilson describes it as a large bush, or small, deciduous tree, ten feet to forty feet in height, with a trunk up to three feet in girth. The attractive, pinnate, often doubly-pinnate leaves are from about eight inches to eighteen inches long and half as wide. The yellow flowers, half-an-inch long, are borne freely in terminal panicles during July and early August at the ends of the growths of the current year. The flowers are followed by inflated, three-valved capsules about two inches long and one inch broad. These turn bronzy-red in autumn, and are very ornamental during September and October. Each capsule contains normally six seeds, these providing a ready means of increase, although root-cuttings also may be used should a plant not have reached the flowering stage. *A. Osborn.*

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* *Spanish Gardens: their History Types and Features,* by C. M. Villiers-Stuart. London: B. T. Batsford, Ltd.

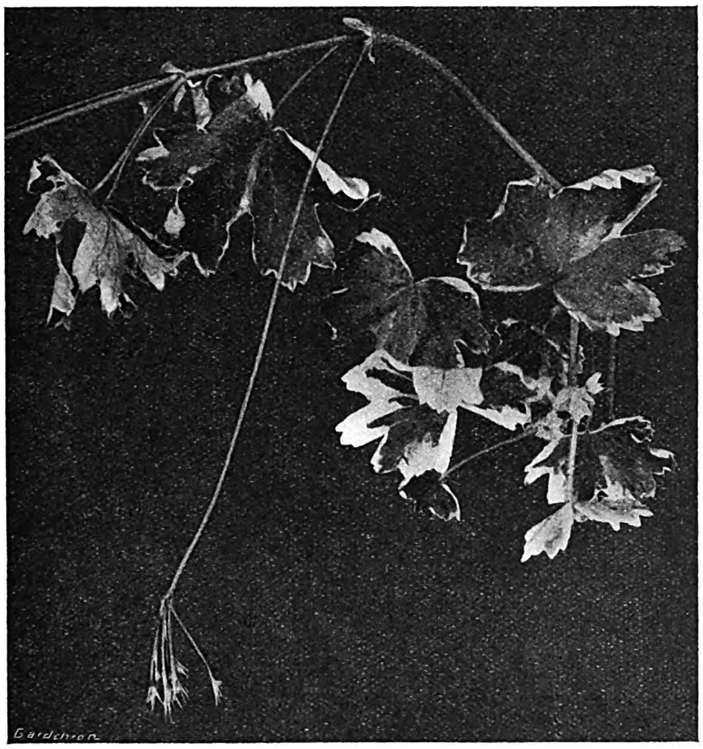
FIG. 177.—PELARGONIUM MANGLES'S VARIEGATED.

PLANT VARIATIONS.

(*Continued from p.* 368.)

SPORTS, CHIMAERAS, VARIEGATION AND MUTATIONS.

Pelargonium.

Pelargoniums of the scented-leaved section, or Cape Pelargoniums of the old florists:—

P. Rollissons' Unique, a reputed hybrid between P. capitatum and some garden variety sent out by Messrs. Rollissons, of Tooting, near London, has given rise to several sports, sometimes by buds, but whether any of them came from root-cuttings has not, to my knowledge, been recorded.

At Merton, this typical purple form gives rise to a pale or lilac-coloured form of flower. We have not yet succeeded in raising either of these forms from roots. (See *Gard. Chron.* Dec. 22, 1923, p. 364, for a full account of this plant).

The variegated form of P. graveolens, the Oak-leaved Pelargonium, known as Lady mouth, grows easily from root-cuttings, but the resulting plants are green. P. Clorinda is a garden hybrid with large, rose-coloured flowers. This plant comes quite true from root-cuttings. It sometimes produces a paler or lilac-coloured flower sport called Joan. This was propagated by means of stem cuttings. In course of time, root-cuttings of the latter were made, and a large number of plants raised, all of which reverted to Clorinda. Clorinda, in common with nearly all sporting plants, frequently has some of the petals or half of a petal of a different colour to the rest.

Pelargonium Mangles's Variegated, or Mangles's Silver Leaf, and also known as Pelargonium Manglesii, is a variety of free, spreading and slender habit, having leaves broad, flat, lobed, and irregularly white edged, and flowers small, pale pink (Fig. 177). In the *Cottage Gardener,* Vol. 13, 1855, p. 499, will be found the following reference: "A natural sport from a thin-leaved Horseshoe, pink-flowered species, which will not breed with any other species," and in Vol. 16, 1856, p. 45, is a note by Donald Beaton: "That beautiful sport called Mangles's Variegated appeared little more than twenty years since in the garden of Captain Mangles, at Sunning Hill; when well done, it is the best of all our variegated Geraniums yet." At Merton, the plant occasionally produces green-leaved sports, both spontaneously and from root-cuttings. These sports have flowers identical with those of the parental variegated form.

At Merton, another form with the variegation, less distinct, is grown under the title of P. Menziesii, a name, however, which cannot be traced in catalogues or books. This plant also produces green-leaved sports, spontaneously, and from root-cuttings, identical with those produced by Mangles's Variegated.

Pelargonium Madame Salleron, also known as Madame Salleroi, Madame Salleroy, Little Trot, etc., is of very compact, dwarf habit. The leaves are small and thin, with white margins. The internodes do not lengthen as in Mangles's Variegated, and in this, its normal condition, it has never been recorded as having produced flowers.

Madame Salleron will sometimes produce shoots of the original parental form, Mangles's Variegated, in which case it produces flowers. Root-cuttings, too, will sometimes come quite dwarf, with green leaves, in which condition it does not flower. It would appear that the dwarf forms, both variegated and green, in which the internodes have not developed, possess some inhibiting factor which prevents the formation of flowers (Fig. 178). When, however, it develops the tall, green-leaved sport, and when grown from root-cuttings, the internodes lengthen, and the plants attain a height of fully three feet and produce small, pink flowers (Fig. 176), similar to Mangles's Variegated (*Gard. Chron.*, 1923, ii, p. 364). A specimen of the green-leaved form submitted to Kew for identification was declared to be a good match of Pelargonium alchemilloides, a common South African species. According to H. Dauthenay (*Les Geraniums*, p. 164, published in Paris, 1897), this variety originated in 1877 in the garden of Madame Salleron, Melun, as a sport from a bed of Mangles's Variegated.

It is interesting to note that Mangles's Variegated, Menziesii, and Madame Salleron, not only produce green-leaved sports, but also white-leaved sports, which, of course, quickly die. *A. Hosking, Garden Superintendent, John Innes Horticultural Institute, Merton, Surrey.*

(*To be continued*).

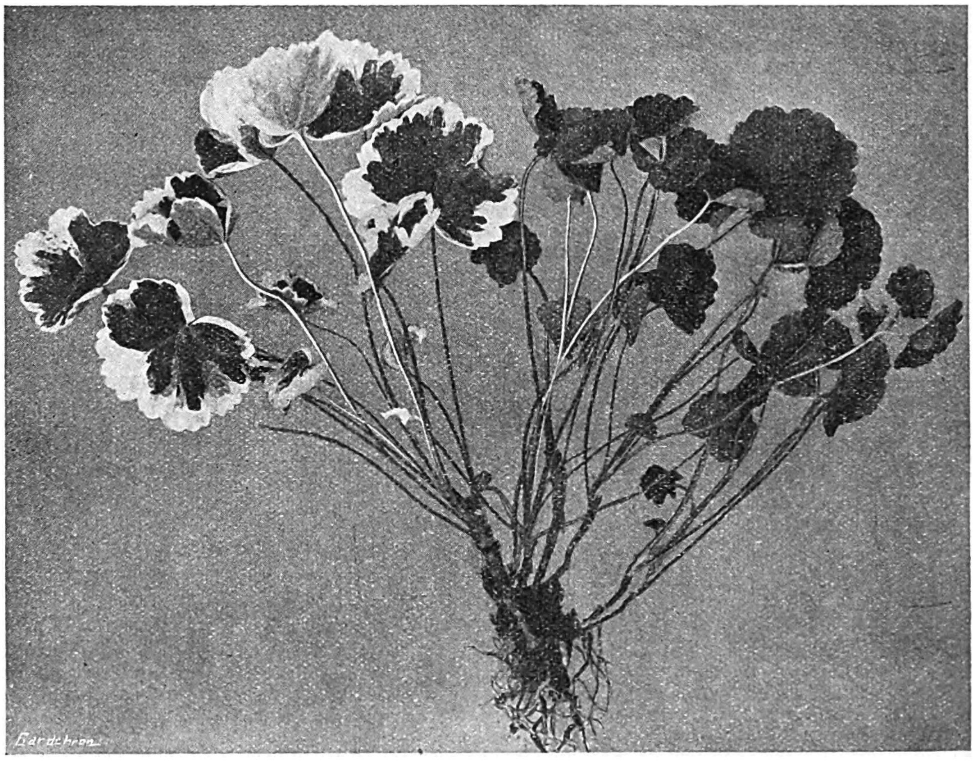
FIG. 178.—PELARGONIUM MME. SALLERON, SHOWING A GREEN-LEAVED ROOT SPORT.

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LILIUM CANDIDUM VAR. PEREGRINUM.

FROM time to time and for no very obvious reason, interest in old and more or less forgotten plants flares up, with the result that they are temporarily rescued from comparative obscurity and find a multitude of new friends. Judging by the number of letters received from correspondents, something of the kind must have happened last summer in the case of the variety of L. candidum called peregrinum, which has never had the vogue enjoyed by the type and has always remained more or less in the background. Whether that has been due to some want of the qualities of the type or to one of the unassignable reasons which often seem to determine the popularity of a flower, is, perhaps, a matter of opinion, but those amateurs who grow the plant more for its interest than its intrinsic beauty, are probably not far wrong.

Of the origin of the plant, as distinct from its first appearance in cultivation, we know nothing, but the main peculiarities which distinguish it — the nodding habit of the bell-shaped "starry" flowers, with petals narrowed at the base and leaves both fewer and narrower than those of the type—have induced more than one investigator of the past to regard the plant as a good species. Until someone proves by experiment that seeds of L. candidum throw plants of the type, that is, with semi-erect flowers, having broad petals and stems with broad leaves, as well as plants with nodding narrow-petalled flowers and narrow stem leaves, the varietal standing of peregrinum must always remain in doubt. The weight of evidence, however, in favour of that standing, is reasonably conclusive.

A black stem is commonly held to be a characteristic of the variety peregrinum, but the writer has been unable to find the origin of the belief, or any justification for it, except a reference to it by Solms-Laubach in circumstances referred to below. Clusius, who first described the plant (1583) as Sultan Zambach, made no mention of the character, nor did Miller (1768), who gave it specific rank as L. peregrinum; and we are entitled to assume that each would have noted the black stem had he thought anything of it. On the other hand, both authors quote the pendulous flowers as a character, and it is undoubtedly the important one.

So-called "black"-stemmed forms of Lilies which normally have green stems, are so common as to excite comment, and they may often be found in colonies of L. candidum. They are of spontaneous origin, as anyone interested may see for himself, by sowing a capsule of seeds of L. longiflorum var. formosanum, for example, for both purple and green stems will be found among the seedlings. It is the same with L. Martagon var. album, L. Henryi and L. superbum, among others, and even with L. giganteum. Sometimes, where white-flowered Lilies are concerned, the purple pigmentation of the stem coincides with a similar colouring of the keels of the petals, as in L. longiflorum, or in a deepening of the purple markings of the flower, as in L. giganteum; but there does not seem to be any definite rule about it.

In the writer's experience the peculiarity is only perpetuated to a comparatively minor extent by seminal propagation, and to make sure of a perpetuation of it, it is necessary to propagate a black-stemmed variety of any Lily by one of the many familiar vegetative processes.

So far, therefore, as the actual origin of the black-stemmed varieties of the Madonna Lily is concerned, we may be content to regard it as spontaneous. Indeed, it is not impossible that the original form of L. candidum may have had a black stem, and that what is called the type may have derived from it!

Of the history of the variety peregrinum in gardens, much more is known than can be written of many plants which, like this Lily, were introduced to cultivation about 350 years ago. Towards the end of the last century the variety came under the notice of Solms-Laubach and that erudite amateur probed the history and synonymity of it with customary thoroughness.[*] His citation of authorities was voluminous, but the wisdom of his recognition of the black stem as a specific character is open to doubt.

Centuries, however, before the Duke of Solms-Laubach's time, this form of L. candidum had come under the notice of Clusius,[†] and it was through his agency that it was first brought into cultivation in western Europe. At this time the precise date is immaterial, but it must obviously have been during the thirteen years ending in 1587, which Clusius spent in Vienna, and must have been prior to 1581, as Lobelius published a woodcut of the Lily in that year.[‡] The plant came to Clusius from Constantinople as Sultan Zambaq—literally, the King's Lily, from the Persian *Zanbe*—which was corrupted into Zambak and Zambach, a name that persisted in dealers' catalogues until modern times. Accompanying the bulbs was a copy of a catalogue (in Italian) in which the Lily was described as *Fa grandi fiori bianchi* and *a odore de giglio*.[§]

Thinking that the Lily was a new species of L. Martagon, Clusius sent some bulbs of it to friends in Belgium as L. Martagon constantinopolitanum—a name which clung to the plant for long afterwards—and it was not until the Lily flowered that he realised that, in vulgar parlance, he had "been sold a pup." Clusius's chagrin at the discovery will be shared by the many gardeners who have suffered much the same kind of disappointment in the case of other plants, and it may account for the scrappiness of his description of the Lily. Clusius did not even think it necessary to refer to the nodding habit of the flowers, although the character is shown clearly enough in his figure. It is typical of the confusion of which this Lily has been the subject, that this old figure of Clusius's is one of the few in which the nodding habit is portrayed.

We have seen that during his sojourn in Vienna (1573-1587), Clusius sent bulbs of the Lily, Sultan Zambach, to Belgium, and the plant was not long in finding its way to Holland, whence, as has been the case with so many plants, it reached this country. Here it seems first to have come under the notice of Miller,[‖] who, notwithstanding the prior publication of the Lily by Clusius as Sultan Zambach, made it a good species as L. peregrinum, literally, the foreign Lily. K. Bauhin[*] had referred to it as such 145 years before, and possibly that influenced Miller in his choice of a name. Gerarde had it in the list of plants (*Herball*) he cultivated in 1596, but under the name given to it by Clusius, and Linnaeus referred it back to L. candidum. Modern authorities have not been disposed to regard the Lily as worthy of specific rank, for Baker[†] rated it as a variety of L. candidum, and Elwes[‡] viewed it in the same light.

There is no figure of the variety peregrinum in Redouté's *Les Liliacées*, but in the text, De Candolle, after quoting the descriptions and figures of Clusius, Lobelius and de Bry (who, however, each copied Clusius), so well as Miller, refused to believe "that after a single inspection of the figures cited, one could retain a doubt as to the distinction between the two species (L. candidum and L. peregrinum), especially when one considers the positive assertion of Miller."

Miller, who apparently cultivated his L. peregrinum, which he called the white foreign Lily with pendant flowers, relied for his specific characters on the nodding habit of the flowers, which, in L. candidum, are semi-erect; their smaller size and thin petals narrowed at the base, which produce a "starry" effect; and the shorter stem with fewer and narrower leaves. It did not seem to have occurred to Miller to satisfy himself by raising the Lily from seeds, that all the characters on which he relied were constant, but short of that, the only one which would carry any weight now is the nodding habit of the flowers.

Solms-Laubach went far more minutely into the differences between the Lilies than Miller had done, and growing the two side by side, was able to make a comparative analysis, as it were, of the salient points of each. He found the major differences with which students are familiar—the almost pendulous poise of the flowers, the greater length of the leaves, and the comparative absence of the twist in them. He referred, too, to the violet-brown of the stem and leaves.

He found, also, in the flowers, a host of minor differences of the kind any observer who is on the look-out for them can find in such circumstances, and observed many points in which the fruits of the two Lilies were dissimilar; and in the end, after a reasoned consideration of the pros. and cons., reached the conclusion that the difference between L. Sultan Zambach and L. candidum were of a comparatively unimportant nature.

As Solms-Lambach observed, this variety of L. candidum has a considerable history, which, incidentally, is enriched by a wealth of references to authorities rarely found in similar circumstances. Anyone specially interested in the subject will find an ample citation of references to Clusius's Lily in Rédoutés *Liliacées*, wherein, however, the Lily is not figured. This is the more to be regretted as that master never left any doubt in the enquirer's mind as to the identity of a plant he figured.

The Lily was figured in the original description of Clusius and in Bauhin's *Pinax*, and the illustration in the latter work was made use of by several subsequent writers.

In his *Pharmaceutical Plants*,[§] the German author, Hayne, had an illustration of a slender young plant, with the observation that both kinds of the white Lily had been established in the garden of C. Bouché, art and commercial nurseryman, in Berlin, and after growing in a long row for years, showed the stability of both forms. Unfortunately, however, this figure has the flowers, at right angles to the stem and not in a nodding position! That did not prevent Solms-Laubach from regarding it as the best modern illustration of L. peregrinum, a view which shakes one's faith in his judgment, as it seems merely to represent a typical form of the thin-petalled, starry-flowered variety of L. candidum.

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[*] *Bot. Zeit.*, 1897, pt. iv., p. 63.

[†] *Stirpes Pannoniae* (1583).

[‡] *Kruydtboeck*, etc. (1581).

[§] With large white flowers, Lily-scented.

[‖] *Gard. Dicty.*, Ed. viii (1768).

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[*] *Pinax*. p. 76 (1623).

[†] *Gard. Chron.* (p. 709), 1871.

[‡] *Mon. Gen. Lil.* (1880).

[§] *Arzneigewächsen*, Vol. vii, tab. 27 (1821).

In this country L. candidum var. peregrinum has had its ups and downs, and like many old plants which are never common, but which, equally, never seem to die out, there is sometimes attached to it a legendary importance to which its merits hardly entitle it. For all that it persists in some places, it does not seem to have all the qualities of endurance which make L. candidum the common plant it is; but no one who wishes to grow it need anticipate any difficulties on that score.

The name speciosum has been attached to a variety of L. candidum which has a "black" stem and narrow, pointed, snow-white petals. I have been unable to find any formal publication of the name, which, like so many plant names, seems to have originated in a Continental nurseryman's catalogue, possibly that of Van Houtte, of Ghent. The variety of L. Martagon var. album called "superbum" is another instance of the same practice. The precise differences between the varieties speciosum and peregrinum are unknown to the writer, but they seem to turn on the way the flower is carried on the pedicel. It will not be a matter for surprise if the nodding habit of the bloom is the determining character in Clusius's Lily. *A. Grove.*

HYBRID BARBERRIES AT WISLEY.

Just thirteen years have elapsed since, in November, 1916, Berberis rubrostilla was shown at a meeting of the Royal Horticultural Society and awarded the much coveted First Class Certificate. Since the début of this hybrid—still the most beautiful-fruited of all the Barberries—many thousands of these red-fruited hybrids have been raised at Wisley where, every autumn, they constitute probably the most attractive feature of the gardens, and every year thousands of packets of seeds collected from them are sent out to the Fellows of the Society at the annual "distribution."

The best of the early hybrids were named and shown at the meetings of the R.H.S., but good ones soon became so numerous that it was considered impolitic to continue the naming of them and they are now referred to as the race of Wisley hybrid Barberries.

As autumn-fruiting subjects they are invaluable, for they present a wide range of form and colouring in their fruits, which, provided the bushes are carefully tended, are produced in prodigious quantities; they are also very variable in habit, although this variability is confined, to a greater or lesser degree, to the various classes, defined according to parentage.

As stated, B. rubrostilla was the first to receive recognition. It is a hybrid, and its parentage is unknown as it appeared by chance among a batch of seedlings raised at Wisley. When shown, it was stated that attempts would be made to ascertain the parentage by raising seedlings from it; this latter work has been done, but the doubt as to the parentage still exists; for the seedlings have given rise to an extraordinary range of varieties, many of which are extremely fine and almost equal B. rubrostilla in beauty.

B. rubrostilla (*Gard. Chron.*, Nov. 11, 1916, Fig. 93) is a shrub of graceful habit, its erect growths attaining a height, when grown in bush form, of about four feet, and from them spring the gracefully arching lateral growths which bear the fruits. These are fully half-an-inch in length, large and striking, firm and fleshy; from green they change to almost white, and then gradually take on a cerise tone, until, by the end of October, they are a wonderful translucent, light sealing-wax red. The fruits are borne in clusters of two to five or six, on slender stems arising from the centres of the clusters of light green leaves disposed along the lateral growths. When trained against wire supports and grown as an ornamental hedge, for which purpose B. rubrostilla, together with the tall-growing B. polyantha hybrids, is admirably adapted, it will attain a height of five to six feet.

In a group of varieties derived from B. rubrostilla are to be found the best of the bush-forming hybrids, with a range in height of between three feet and four-and-a-half feet, and very suitable for planting in shrub borders, either singly or in groups. Among named sorts in this group are Autumn Beauty, Firefly and Sparkler, three of the most striking varieties produced.

B. Autumn Beauty (*Gard. Chron.* Oct. 6, 1923, Fig. 77) ranks next to B. rubrostilla and forms a handsome bush up to about three-and-a-half feet high, of more or less erect habit, the lateral growths being closely set with clusters of up to seven, sometimes more, brilliant, coral-red fruits, conical in shape, and three-eighths-of-an-inch long. This magnificent hybrid was shown at the R.H.S. meeting on October 2, 1923, when it received an Award of Merit. B. Firefly has brilliantly-coloured fruits, but does not equal B. Autumn Beauty as an all-round garden shrub, being somewhat less vigorous and not so regular in fruiting.

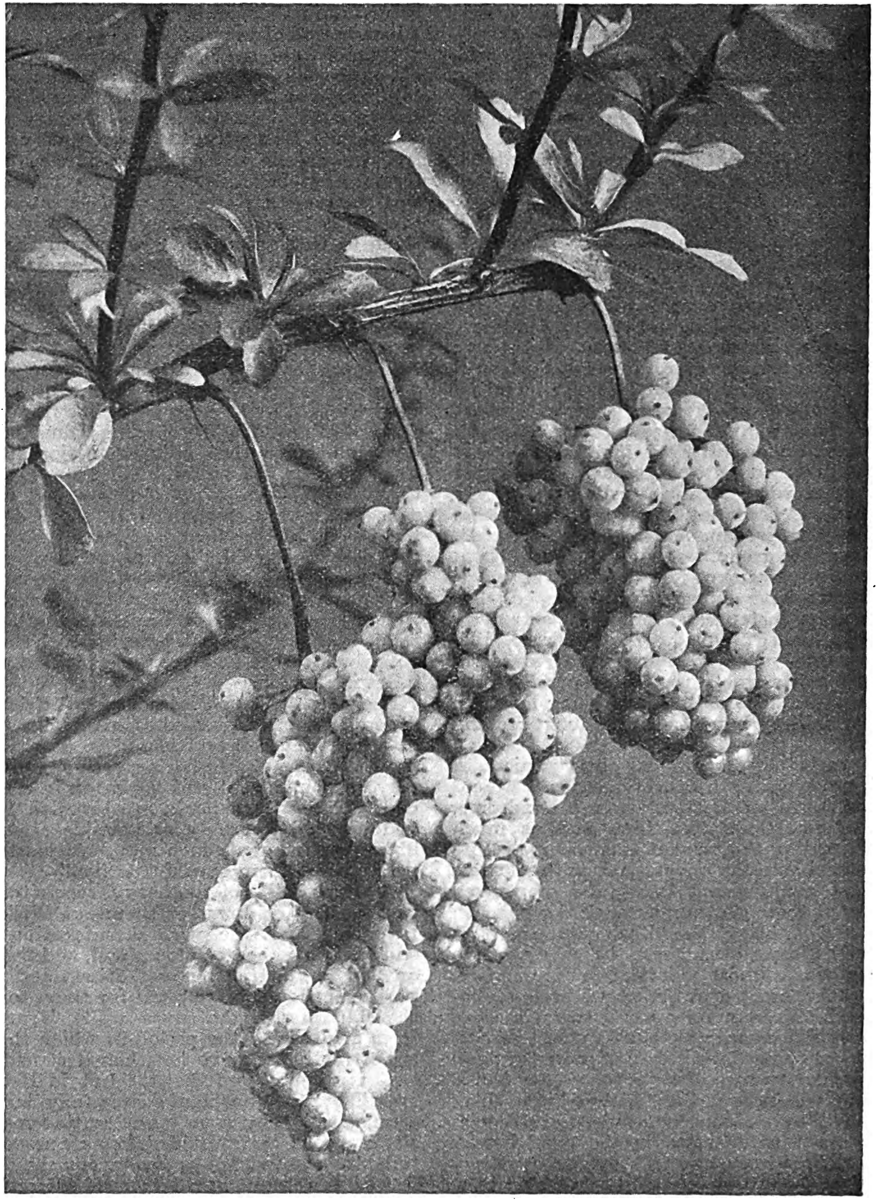

FIG. 179.—A HYBRID BARBERRY AT WISLEY.

B. Sparkler is well-named, and it deserved the Award of Merit bestowed upon it on November 1, 1921, for it is a shrub of graceful habit, its pendulous lateral and terminal growths being set with trusses of up to about ten inverted Pear-shaped, glowing cerise-red fruits, which before reaching maturity are covered with a film of "bloom." This hybrid is free-fruiting, the whole bush becoming a sparking column in the autumn sunshine. The hybrids described above are typical of the B. rubrostilla group—free-fruiting, free-growing if carefully tended, and of good habit, and all producing fruits of good substance and vivid colouring.

B. Wilsonae, and the natural hybrid B. ferax, have given rise at Wisley to a distinct group of hybrids, but so far as decorativeness is concerned they do not, with few exceptions, compare favourably with the preceding group. Nearly all of them have the habit of growth of B. Wilsonae, forming low, dense, spreading bushes, and with greyish foliage, so that the fruits, produced often with prodigal freedom and varying somewhat in size and colouring, lose much of their effectiveness by being hidden from view owing to the denseness of the growths. For table decoration, however, the fruiting sprays of this group are very effective, the fruits, in shades of coral-red, looking very attractive under artificial light. This, however, is no recommendation for their general planting, as the majority of the hybrid Barberries are very suitable for this purpose—until the fruits commence to drop.

B. Coral is a named member of the B. Wilsonae group, of low-growing habit and with very grey undersides to its foliage. It is free-fruiting, the lateral growths, which are formed along practically the whole length of the main growths, being packed closely with small fruits in a good shade of coral-pink, the whole making wonderful sprays of berries. B. Tom Thumb, raised by S. Morris, Esq., of Monbretia fame, and awarded an Award of Merit when shown before the R.H.S. on October 16, 1923, is stated to be a hybrid between B. Wilsonae and B. aggregata. It is very suitable for growing on the rock garden or bank owing to its dwarf stature and spreading habit, its fruits being like those of B. Wilsonae.

With B. subcaulialata (*Gard. Chron.*, Jan. 16, 1926, Fig. 19) as the seed parent, another distinct range of hybrids has been obtained, the majority of which show affinity to the seed parent. They are of low, spreading growth, and many of them fruit so heavily upon reaching maturity that, unless checked in this respect, they cripple themselves. B. Comet (*Gard. Chron.* Feb. 2, 1924, Supp. Plate) is an example of this. When given an Award of Merit, on October 30, 1923, its long, arching growths were so packed with clusters of small, cerise berries from base to tip that it was difficult to see any of the stem between them, and this prolificness was continued for a year or two. This year, the two stock plants are barren, nor have they made much growth. B. Comet is certainly the most striking of the B. subcaulialata class, many members of which portray the same habit of fruiting to excess, thereby rendering themselves stiff and ungainly in appearance and not to be commended.

Next to the B. rubrostilla group, those with B. brevipaniculata blood are the best of the bush type, and these gradually merge into the B. polyantha section. The purplish "bloom" of the fruits of B. brevipaniculata is apparent in most of the hybrids from it, and it is, perhaps, a pity that a few more of them have not been named. The fruits of the members of this group are small, rounded, and produced in large, dense clusters which may consist of seventy or more berries hanging gracefully from the lateral or main growths, as in the hybrid illustrated (Fig. 179), which was shown recently at Vincent Square. This hybrid forms a compact bush about three-and-a-half feet high, with stout growths furnished with laterals in the upper portion, and when fruiting well is extremely handsome. It shows affinity to B. polyantha.

B. Fireflame is a named member of the B. brevipaniculata group, but since this was shown and given an Award of Merit, on November 1, 1921, others have appeared and are equally, and in some instances, even more attractive than this named hybrid. B. Fireflame, like all the members of this group, is extremely free-fruiting, its small, round, deep red fruits, covered with "bloom" at first, being borne in compact, axillary bunches on the long, arching growths.

One especially good B. brevipaniculata hybrid, growing in the collection near the pond in Seven Acres, at Wisley, forms a handsome, rounded bush, three feet high and as much through, and at the present time nearly all its short lateral growths are packed with clusters of typical small, round fruits, the orange-red colouring of these showing through the purplish bloom and lighting the bush up so that it is easily discernible among the many. Two other hybrids, almost identical in appearance, have slender, erect growths about three-and-a-half feet high, forming graceful, open bushes, and carrying numerous clusters of berries, the bunches being three inches or more long and containing an average of sixty to seventy fruits. In some of the hybrids the "bloom" is so thick that the fruits are distinctly purple, and although these are not so effective in the open border as the brighter-fruited sorts, they are an attractive variation and very beautiful in artificial light.

Another very important section of these hybrid Barberries is the B. polyantha group, the members of which are very attractive in the bush form, when they attain a height of five to six feet, but are most effective when trained against supports to form an ornamental hedge. At Wisley, such a hedge is to be found on the margin of the formal Azalea garden. The main growths are secured to cross-wires to a height of six feet or so, and the terminal and lateral shoots are left free to droop gracefully over, and when these are all heavily fruited the hedge presents a magnificent spectacle of brilliant colouring, in vivid shades of orange and vermilion. The fruits are small and round, and packed closely along the laterals in dense clusters of twenty to forty, often many more, so that the growths are weighed down by the fruits. When grown as a bush the gracefulness of these hybrids is lost, unless stout stakes are provided to support the main stems.

Up to the present, the Wisley hybrids have been produced on a large scale, with the result that there are now several thousands of them, many extremely beautiful and worth perpetuating, but, of course, a large number are worthless, and it is now time that the collection was thoroughly overhauled, and all the inferior hybrids scrapped, as these detract from the charm of the finest forms. When this has been done, selective hybridisation may result in even greater achievements, for there appears no end to the variations of which these red-fruited Barberries are capable, while there are several untried species which might also be introduced as parents.

The red-fruited Berberis hybrids are not exacting in their requirements, nor is it difficult to maintain them in a cropping condition over a long period of years.

Raised from seeds, they come into bearing about the third or fourth year; cuttings of good forms are not difficult to root, while layering of the growths of established plants may also be practised. Naturally, the hybrids do not come true from seeds, but usually a number of good forms may be secured by this method. If the berries are stored in sand—stratified—for the winter, the seeds may be rubbed out of them in the spring and sown, with the sand, in a seed-bed out-of-doors. Germination is usually rapid and the seedlings soon develop extensive root-systems, far out of proportion to the top growth, which is limited in the first year. If the seeds were sown thinly, the seedlings may be left undisturbed for the first year and given every encouragement to make early growth, by keeping them free from weeds, and watering and lightly shading them during the hot summer months; light protection may also be afforded in the winter. The following spring they may be transplanted into a bed of good soil, when top growth will soon develop; by the end of the third year good bushy plants will have formed. An alternative method is to sow the seed in five- or six-inch pots and prick the seedlings out into boxes, from which they may be transplanted into a bed in the open, or into small pots, in which they may be grown for the first year and planted out the following spring.

Short, well-ripened lateral growths should be selected as cuttings and these, if inserted in pots of sandy soil and placed in a cold frame, should root by the following spring, when they may be planted out and grown on in a nursery bed. The cuttings should be taken with "heels" and inserted so firmly as possible around the inner margins of six-inch pots. At least eighty per cent. of them should "strike."

A loamy soil, not too heavy, seems to be the best rooting medium for them—at Wisley, the B. polyantha hedge, with B. rubrostilla at one end of it, is on heavy, clayey soil, and the plants are in a flourishing condition—and sunny positions should be selected for them to ensure the colouring of the fruits while, if protected from cold winds, the period in which the fruits are attractive may be lengthened considerably.

It is often stated that the hybrid Barberries are difficult to transplant successfully, but this is erroneous. They form large, matted masses of slender roots, and provided they are moved carefully and planted firmly, specimens six or seven years old, or more, may be moved successfully.

Pruning is the most important operation in their culture, and the most unpleasant owing to the needle-spines with which their growths are amply furnished. Stout leather gloves should be worn, as the spines are not easy to remove from the hands once they have penetrated, and are likely to prove exceedingly painful.

The fruits are produced on the growths of the preceding season, therefore it is necessary to maintain a good succession of annual growths. If, early in the season, the young growths are thinned, those left will develop into good fruiting sprays, while the growths which have borne fruits may be cut back to the base so soon as the berries have ceased to be attractive, which will depend upon the severity of the early winter. By this method a good balance of growth may be maintained and the bushes kept in a vigorous condition for many years. If left unpruned, they may crop prolifically for a few years but will soon wear themselves out.

The pruning of the B. polyantha hybrids when grown as ornamental hedge plants and trained against supports, is slightly different to the method adopted for bushes. Main growths are laid in to form the frame-work, and the fruited laterals are spurred back to within an inch or so of the parent stems, their places being taken by the growths of the current season. If this is attended to regularly, the spurring back of the fruited—previous season's —growths should result in the annual production of vigorous lateral growths.

Finally, it is worthy of note that, although grown primarily for their fruits, the Wisley hybrid Barberries are by no means unattractive when in blossom, while in the autumn their foliage often assumes rich colouring, thereby increasing the already brilliant effect. *F.*

THE GENUS PRIMULA.

(*Continued from p.* 369.)

SOULIEI (Franch.). Souliei's P.
(Souliei).

A DWARF, deciduous, non-mealy, perennial species with a tiny rosette of rather thin, oval, blunt leaves from half-an-inch to one inch long, truncate or obscurely heart-shaped at the base, tapering to comparatively long, slender, narrowly winged stalks; margins furnished with rounded, regular teeth; both surfaces covered with short, stiff hairs. Flower stems numerous, one inch to four inches tall, bearing one or many, terminal, purple-violet blossoms on long, slender stalks. Corolla very broadly funnel-shaped, about three-quarters-of-an-inch across, with short, broad, bilobed segments; tube cylindrical, longer than the calyx.

Grows in cool, rocky places, on the mountains near Tatsienlu, in Szechuan, central China.

Culture: Grow it in peat and fibrous loam, in a cool, half-shady spot, with protection from damp in winter.

SPATHULIFOLIA (Craib). Spatula-leaved P.
(Minutissimae).

This pretty little species was formerly considered but a variety of P. minutissima, Jacq.. It is a dwarf, densely-foliate perennial with creeping stolons; the tufts of deep green leaves have spathulate-oval blades, half-an-inch to one inch in length, with rounded tips and margins, edged with coarse, rounded teeth; usually smooth above and coated with pale-coloured meal beneath. Flower stem very short, immersed in the foliage, bearing one or two pale purple, stalkless blossoms. Corolla nearly three-quarters-of-an-inch across, with broadly heart-shaped, deeply cleft lobes; tube cylindrical below, dilated upwards, about five-eighths-of-an-inch long. Flowers in June and July.

Grows in rock soil among dwarf herbage, in the Sikkim Himalayas, at about 13,000 feet above sea level.

Culture: As for P. minutissima.

SPECTABILIS (Tratt.). Showy P.
(Auricula-Arthritica).

A very delightful European perennial species with a rosette or tuft of broadly diamond-shaped or oblong, pointed leaves, one to three-and-a-half inches long; margins quite entire, with a broad, cartilaginous edge; upper surface bright shining green, both surfaces dotted with minute, transparent glands emitting a somewhat viscid secretion. Flower stem two to six inches tall, bearing an umbel of one to seven rose or rosy-mauve blossoms. Corolla broadly funnel-shaped, three-quarters-of-an-inch to one-and-a-quarter inch across, with broadly heart-shaped, notched lobes; tube cylindrical below, dilated upwards, longer than the calyx. Flowers in July. Illust. in *Jour. Roy. Hort. Soc.*, Vol. XXXIX, 1913. Introduced in 1879.

Grows in large masses in alpine pastures in open, sunny places, usually on limestone formations, in the Alps of Judicaria and Verona at 1,500 to 7,000 feet above sea-level.

Culture: Rich, fibrous, calcareous loam, in an open situation are the conditions which suit this deep-rooting and vigorous species best
A. W. Darnell.

(*To be continued*).

EARLY-FLOWERING CHRYSANTHEMUMS.

During the past two years (1928 and 1929), a comprehensive trial of early-flowering outdoor Chrysanthemums has taken place under the auspices of the National Chrysanthemum Society, in the nursery of Mr. W. Hatch, Cookham, near Maidenhead. Mr. Hatch has taken the keenest interest in the trials, and it is largely due to his desire to help the National Chrysanthemum Society and, incidentally, help growers, that he offered late in 1927, to set aside an area in his nursery for the purpose of making an exhaustive trial of these popular flowers.

Last year's initial effort was not a success, as the plants sent in for trial by various members of the trade and other growers were propagated at different periods, and for this reason a proper comparison between the different varieties could not be made.

The sub-committee responsible for the trial was selected from the Society's Floral Committee, and consisted of the Chairman, Mr. D. B. Crane, and Messrs. P. A. Cragg, D. Ingamells, Thomas Stevenson and Charles Davis. Although last year's effort was somewhat disappointing, the Committee was able to eliminate a number of varieties that were synonymous or too-much-alike, and in consequence were able to restrict the number of sorts under its control. A matter of supreme importance in a trial of this character was that the propagation of plants for the current year was carried out at one and the same time; as a matter of fact, the first batch of cuttings was put in in late February and the second batch in early March.

In order to improve the condition of the soil in the area allocated to this trial, a good dressing of farmyard manure was applied, and the quarters thoroughly trenched. The surface soil was left rough for some time, and at the time of planting a sprinkling of Clay's fertiliser was applied. Planting out in the flowering quarters took place during the third week in May, and the more satisfactory condition of the plants this year is largely due to the fairly generous treatment the plants received.

There were no fewer than 290 stocks planted and three plants of each variety; one plant of each variety was disbudded and the remaining two left to grow in natural fashion.

The trial was inspected by the Sub-Committee on two occasions while the plants were in flower, viz., September 24 and October 8. A goodly proportion of plants were in flower on the occasion of the earlier visit, and these were carefully inspected and points awarded to varieties of sufficient merit. The interval of a fortnight between the two visits enabled the Sub-Committee to see many varieties that were not ready for inspection on the first visit, but very many were too late in coming into flower, and for this reason could not be regarded as early-flowering.

Points were awarded to varieties of outstanding merit, three points being regarded as the maximum for the better varieties and two points to others less meritorious in their general character. No lower award was made.

Many old and once popular varieties failed to gain recognition, being easily outclassed by those of recent introduction. Here and there were instances in which some of the older sorts were doing well and holding their own against the newcomers; their constitution, habit, freedom of flowering, and the character of the flowers leaving little to be desired. The trial has proved most conclusively that we are no longer dependent on continental raisers for new early-flowering Chrysanthemums, as quite a large proportion of varieties in the trial, originated in the gardens of British raisers, and these in most instances were distinctly superior in every way to those of continental origin.

A noteworthy fact was the large number of synonymous sorts and those too-much-alike to others of proved merit, and to this aspect of the trial the Sub-Committee gave especial attention.

In adjudicating the value of the respective varieties, the plants were regarded either from the point of view of producing disbudded blooms of good form and colour, or for their value as plants for the border, or for both purposes, and the awards of the Sub-Committee will show for what purpose the selected sorts should be grown. The following varieties each received three points on September 24:—

Horace Martin, bright yellow, good border plant, two-and-a-half feet; Harrie, bronzy orange, useful border plant, two feet; Florrie Wilkinson, buttercup-yellow sport from Polly, two feet; Hollicot Yellow (syn. Cranfordia), best early yellow, two-and-a-half feet; Hollicot Bronze (syn. Harvester), yellow, shaded bronze, two-and-a half feet; Cranford (syn. Chaldon), golden yellow, fine border plant, three-and-a-half feet; Candie, white, tinted carmine, very good, sport from Pluie d'Argent, one-and-a-quarter-foot; Mrs. Jack Pearson, bronze, continuous bloomer, border variety, three feet; Amber (Single), amber, very fine, border variety, two-and-a-half feet; Mrs. Phil Page, reddish-bronze, sport from Mrs. Jack Pearson, three feet; Golden Gleam (Single), golden amber, border variety, two-and-a-half feet; Harvest Glory, bronze sport from Hollicot Yellow, two-and-a-half feet; Crimson Circle, velvety crimson, one of the best garden varieties, two-and-a-half feet; Alex. McAlpine, terra-cotta; this variety is too much like Alex. Coyle, a good garden plant, two feet; Ronnie, rich yellow, of good form, border variety, two-and-a-quarter feet; Roi des Blancs, pure white, a spray variety, three and-a-half feet; Pink Dame, rose pink, good for border or disbudded, two-and-a-half feet; Jean, pale pink, good disbudded or in spray form, a border variety, three feet; Phoenix, bright chestnut, good border variety, three feet; Shirley Fawn, fawn, very fine flower, a border variety, three feet; and Tongo, bright orange, border variety, three feet.

Two points each were awarded to the following varieties on the same occasion:—

Chestnut, chestnut-red, very floriferous, border plant, three feet; Polly, orange, shaded amber, a good border plant, two-and-a-half feet; Crimson Polly, crimson-red sport from Polly, two-and-a-half feet; Firebrand (Single), fiery crimson, border variety, two and-a-half feet; Leslie, good early yellow for the border, two-and-a-half feet; Lizzie McNiel, primrose, a good border variety, two feet; Improved Masse, large, rosy-lilac, good form, two feet; Dick Barnes, Burgundy red, free border plant, two-and-a-half feet; Daffodil, rich yellow, promising for disbudding, three-and-a-half feet; Bronze Early Buttercup, rich bronze, good for disbudding, three-and-a-half feet; Afterglow, bronzy terra-cotta, very free and bushy, two feet; Mrs. R. J. Fielding, chestnut-red and gold sport from Goacher's Crimson, two feet; Low's White, still a good white sort, for sprays or border, three feet; Nina Blick, reddish-bronze, a good border plant, two-and-a-half feet; Lichfield Peach, peach colour, good for cut flowers, three feet; Anastasia (Pompon), rosy-purple, very compact and free, fifteen inches; September Yellow, canary-yellow sport from September White, four feet; Martin Reed, golden-yellow sport from Perle Chatillonaise, three-and-a-half feet; and White Chatillonaise, white sport from Perle Chatillonaise, three-and-a-half feet.

On the occasion of the second visit, October 8, three points were awarded to each of the undermentioned varieties:—

Perle Chatillonaise, creamy-white, tinted pink (as a family, this variety and its sports are good garden plants in a late season), three-and-a-half feet; Martin Reed, golden-yellow, sport from last-named, better on second visit), three-and-a-half feet; White Chatillonaise, white sport from Perle Chatillonaise, three-and-a-half feet; Bronze Chatillonaise (syn. J. Bannister). bronze sport from Perle Chatillonaise, three-and-a-half feet; Almirante, bright orange-bronze, best of its colour, rather late, three feet; Alcalde (syn. Red Almirante), bright crimson sport from Almirante, three feet; Hollicot Beauty (syn. September Glory and Shirley Conquest), bright amber bronze, good disbudded, three feet; Dick Barnes, Burgundy-red, better on second visit, two-and-a-half feet; Betty Spark, rose-pink, good for late sprays or border. two-and-a-half feet; Provence, rosy-pink, tipped gold, good border variety, two-and-a-half feet; Bronze Provence, pretty bronze sport from Provence, two-and-a-half feet; Pluie d'Argent, very fine white, grand border variety, one foot; Verona, bright terra-cotta, a good border variety, two feet; Sunstar (Single), golden-chestnut, a border plant, two feet; Gloria, pure yellow sport from Hollicot Beauty, a variety for disbudding, three feet; Candida (syns. Sanctity and Excelsior), best disbudded white, two feet; and Mrs. W. H. Webber, pink, a border variety.

On the same occasion the following varieties were each awarded two points:—

Framfield Primrose (syn. William Ritchie and Framfield Early Yellow), primrose, good disbudded, three feet; Framfield Early White, quite a fine white, disbudded, three feet; Mabel Roberts, deep pink, good disbudded, three feet; Goacher's Crimson, crimson, still a serviceable variety, two feet; Glow, crimson, tipped gold, good grower, should be disbudded, three feet; Royal Gold, golden-yellow, for sprays and border culture, rather late, three-and-a-half feet; Stanley Baldwin (Single), distinct cherry-crimson colour, border, two feet; September White, white, good border variety, three-and-a-half feet; Champ d'Or, rich yellow, good late garden variety, two feet; Cranford Red, chestnut-red, good bushy garden plant, two-and-a-half feet; Bonnie Lass, deep silvery pink, good garden variety, one-and-three-quarter feet; Alex. McAlpine (syn. Alex. Coyle, or very like it); Mrs. James Scalley, deep rose-pink, border variety, three feet; Madame C. Desgrange, a very old white, still a good garden variety, two-and-a quarter feet; Royal Salute, bright terra-cotta, border plant, rather late, two-and-a-half feet; Purple Robe, light purple, good border variety, two-and-a-half feet; Salmon Queen, salmon and bronze, good disbudded or for border, three feet; Silver Queen, silvery pink, good for disbudded blooms, three feet; Lillie, pearl-pink, a useful border plant, two feet; Minnie Carpenter, terra-cotta, good disbudded, or a border plant, two-and-a-half feet; Abercorn Beauty, deep bronze sport from Polly, two-and-a-half feet; Carrie, yellow, free-flowering, a good border sort, two feet; Golden Firebrand (Single), golden-yellow, border variety, two-and-a-half feet; Mignon, lilac-pink, erect habit, should be disbudded, two-and-a-half feet; J. Rotherham, salmon-buff, good garden variety, three feet; and Golden Security, golden-yellow, good disbudded, rather late, three-and-a-half feet.

Very many of the varieties sent in for trial proved to be useless for early-flowering out-of-doors. The Committee concluded that some sorts were "no good" and others "not wanted," and there were still others that were "promising, but too late." *C.*

MARKET FRUIT GARDEN.

The rainfall of October (3·85 inches) was nearly half-an-inch above the average, but much less than the deluge of the same month in 1928 (7·61 inches). This was fortunate, because there was still much picking of Apples to be done. The work continued throughout the month, but was almost finished at the close. Several gales were the worst feature of the weather, many Apples being brought to the ground and rendered less valuable than they would have been. The trees were revived by the rain, and remained remarkably green until quite the end of the month, even Plums still holding their leaves in many cases.

Storing Apples.

There has been little temptation to sell late varieties of cooking Apples, prices having been very low for such fruit. It seems likely that Bramley's Seedling will pay well for storing this year. Only in certain districts, of which mine is one, is there a heavy crop of this variety, and it is reported that imports of Apples will be considerably lighter than they were last winter. I am sorting out all the largest specimens of my Bramley's Seedling for sale at once and storing the rest. The big fruits do not keep so well as those of medium and small size, and they average 10s. per bushel now if packed in standard boxes. A few of the Apples have been of extraordinary size, packing only forty-five and fifty-six to the bushel box. The greater part of the crop, however, is on the small side. Since the fruits are by no means mature, they should keep well. My store room is quite a small affair, and is fully occupied at present by varieties which have to be held temporarily until they are fit for market. The problem of finding receptacles and accommodation for late Apples always occurs at the close of a season of heavy crops. Previously it has been solved by making heaps or clamps of some of the fruits, either under cover or in the open. I have determined never to adopt this plan again, because it results in a certain amount of marking of the fruits; and the labour of picking it up from the ground for packing is considerable and very trying. This time the difficulty has been overcome by clamping the fruits in the square bushel crates known under the National Mark scheme as cube boxes. The full boxes have been built up in a long, ridge-shaped pile, seven boxes wide in the bottom layer, then six, then five, and so on until one stands at the apex. Wire-netting was stretched over the pile and pegged down to the ground on each side of the clamp. Straw a foot thick was laid thatch-wise on this and held in place by another piece of wire-netting. My clamp now holds fully 2,000 bushels of Bramley's Seedling, or about thirty-six tons. Triangular spaces occur under the thatch at the extremity of each transverse row of boxes, forming flues from end to end of the clamp, through which I hope to be able to admit a draught when the temperature is low outside and the wind is in the right direction. When the interior has been cooled down in this way the ends of the clamp will be closed; and I do not expect to find much subsequent variation of temperature under such a thick thatch. It will be interesting to see how such a store answers. If the fruit keeps well until March it can hardly fail to increase greatly in value. Every rise of only one shilling per bushel means an extra £100 for the total contents. My experience is that, whereas large fruits increase in value by a few shillings per bushel, the small specimens, which are almost worthless in the autumn, double in price, although they are never wanted on the best markets.

Cox's Orange Pippin.

In a season when most of my Apples have been of high quality, Cox's Orange Pippin was disappointing, being far below the level of the past two years. The fruits would not attain the bright colour which is usual in my conditions, although allowed to hang until the lightest touch caused them to drop. This was due mainly to the dry summer, which did not favour colour, but partly to over-manuring, to which this variety appears to be very sensitive. Many of the fruits were of the large, pale, dull character which is associated with too much nitrogenous feeding. There was also a good deal of russetting caused by Bordeaux mixture made with hydrated lime, applied at the pink bud stage of the bloom. However, what the fruits lacked in colour and finish they made up in size, the proportion of "firsts" being greater than I am accustomed to. No other variety was packed for more than a week, and the financial result was distinctly pleasing. What a saleable variety this is. Even the roughest fruits can be disposed of at high prices if the right markets are used. It will be a great pity if its reputation is spoiled by the growing of some of the new varieties which resemble Cox's Orange Pippin in appearance, but which only distantly approach it in flavour. It is a pity that raisers should be so persistent in attempting to produce Apples with the flavour of this variety. So far as the production of new commercial varieties is concerned they would do better to use Worcester Pearmain as a parent variety, with a view to giving us Apples of high colour and good constitution.

Lime and Nitrogenous Fertilisers.

In a previous article, I mentioned the marked response made by nitrogen-starved trees in grass to manuring with lime-nitrogen fertilisers. It has been interesting to follow this response during the growing season. The leaves of both Plums and Apples remained dark green throughout the dry summer, in striking contrast to their poor appearance during the drought of the previous year; and most varieties have made plenty of growth. Plums held their foliage well into the autumn, and now appear to be smothered with fruit buds. Among Apples, some varieties have responded much more than others. Cox's Orange Pippin has made too much growth, and so have some blocks of Allington Pippin. Evidently caution must be used in the nitrogenous feeding of these varieties. Allington Pippin in particular yields the brightest clearest-skinned fruits from trees which are slightly under vigorous, that from more vigorous trees being too large, pale in colour, and with very much of the purple spotting to which this variety is liable. James Grieve is another Apple which must never be treated too generously. Worcester Pearmain, on the other hand, seems to require considerably more feeding, largely, no doubt, because it is not pruned beyond mere thinning out when growth becomes crowded. Lane's Prince Albert, as would be expected from such a weak grower, proves rather stubborn; and Newton Wonder appears to appreciate plenty of food. Evidently it will be necessary to give varieties of Apples individual treatment when applying nitrogenous fertilisers. Writing in general terms, the manuring done last winter increased the size of the Apples and reduced the colour. It also caused a very large proportion of the blooms to set, and has enabled the trees to form many prominent fruit buds in spite of the heavy crop. The breakdown of the old mat of mown grass by the lime-nitrogen fertilisers, particularly calcium cyanamide, has been rapid. A visiting grower recently remarked that the ground felt quite different to walk over. I am satisfied that the problem of manuring fruit trees under sod mulch treatment in my conditions has been solved. It remains only to regulate the amount of manure so as to keep the trees productive without spoiling the quality of the fruit—none too easy a matter with our varied climate. *Market Grower.*

FRUIT GARDEN.

PEARS, CURRANTS AND RASPBERRIES.

This has been a very good year for Pears, and from time to time we have had some very large specimens. The record here is held by Marguerite Marillat with 2¼ lbs. Fruits weighing 1¾ lb. are quite common, and this is the weight reached by some specimens of Charles Ernest. Doyenné du Comice has never reached 16 oz., but we have had many fruits which turned the scale above 15 oz.; in the case of this Pear with its melting flesh, large fruits are very good, but in the solid-fleshed Pears like Marguerite Marillat, the smaller fruits are preferable. Conference is a very good Pear of the buttery type. When perfectly ripe the flesh assumes an orange colour and can be peeled like a Peach.

Years ago, William Bateson gave me a plant of the pink Currant, variously known as the October or Dublin Currant. Apart from its curious colour, which resembles claret and water, this Currant hangs for a very long time, and we gathered some 2 lbs. from the bush on October 21.

In 1927, at Gravetye Manor, we all admired the immense crops of Raspberries from perpetual-fruiting varieties. Mr. Markham recommended Amélioré Congy, Large Orange and Supérlative Pérpetuelle; we obtained these varieties and planted them. They have done very well and began to bear early this autumn. I asked Mr. Markham to let me know how to treat the canes and he writes as follows:—

"Allow them to fruit so long as possible which is usually about the 20th to 25th of November and when the leaves have fallen, prune the tops off which have borne fruits and cut the long side-shoots close in. Then see that each cane is tied securely—I leave them in lines at one foot apart—and apply a dressing of manure, forking it lightly in during the winter. Next year these canes will commence to fruit at the same time as ordinary Raspberries and in the meantime young canes will develop from their base, which should be thinned (choosing the strongest) to one foot apart, and looped in as they advance.

"By the middle of August, the old canes will cease to fruit and should be removed, the earliest of the new canes being already well advanced with swelling fruits and in some instances ripe, hence there is scarcely a break."

Mr. Markham further tells me—the date being October 26—"I gathered 12 lbs. last Saturday in addition to 2 lbs. or 3 lbs. being gathered for dessert and cooking each day." *William Lawrence.*

PEAR GROWING IN ENGLAND.

Pear-growing in England is yet in its infancy In spite of the directions of our scientific institutions, cross-pollenation is still little practised. Then, too, the importance of the Quince stock is not appreciated. With the exception of a few varieties, only the Quince stock should be employed for Cordons or espaliers on ordinary soils, although the Pear stock may be used on soils of exceptional dryness, provided the trees are occasionally root-pruned.

If these conditions are observed and free-fruiting varieties are chosen, the popular saying that Pears are planted for heirs becomes a fallacy. The following varieties when grown on Quince and planted so that they may cross-pollenate each other, may be classed among regular bearers, ripening in the order given: Dr. Jules Guyot, Laxton's Superb (an excellent bearer and grower), Williams's Bon Chrêtien, Marie Louise d'Uccle (nearly always crops) Louise Bonne of Jersey, Fertility, Beurré Hardy, Comte de Lamy, Emile d'Heyst, Conference, Roosevelt, Winter Nelis, Beurré de Naghan, Beurré Diel, Santa Claus, Winter Nelis, Mrs. Seden and Easter Beurré.

It may be noted that some of these are not high quality Pears. Fertility, least of all, is useful because it nearly always fruits, and except during cold, wet seasons, is quite sweet if the fruits are exposed to the sun. It is one of the best of all Pears for cross-pollenation.

We certainly need more good early varieties, and there is room for the patient hybridiser willing to accept honour rather than cash as a reward. I have stated that we are only in our infancy with regard to Pear-growing in this country and can use our two best bearers, Fertility and Conference, as illustrations. Both these varieties have flowers differently constructed to most other sorts. While most Pears open their pollen masses or anthers at once and are so constructed, florally, that the stigmas are above the anthers, with Fertility and Conference the pollen masses or anthers are above the stigmas, and what is of greater importance still, these anthers, instead of opening nearly all at once, row follows row in sequence during many days.

Having regard to the very variable climate of the British Isles, it will be seen that varieties producing flowers of such construction as those of Fertility have what may be termed a better "sporting chance" to set their fruits. Instead of their anthers being in condition to fertilise the stigma of the flower for a few hours only, as is the case with some varieties, such sorts as Fertility and Conference have a period extending from a week to ten days (according to the weather), when the pollen may be in condition.

It is doubtful if the knowledge of fruit-growing in this country is generally more widespread and thorough than it was many years ago. It probably requires a greater skill to produce fruits of exceptional quality than anything else, because of the prolonged demands which it exacts. Gardeners able to produce fruits and vegetables from one end of the year to the other may certainly be classed as the most useful section of mankind; they are not sufficiently appreciated.

The one blemish at the fortnightly meetings of the Royal Horticultural Society is the absence of fruits for the Fellows to inspect. To see good Peaches one must go to Shrewsbury, they are not to be seen in London! In response to an apparently feeble demand, the greatest horticultural society of the world, which should be the greatest patron of the greatest and most important section of horticulture, has so far failed to produce a proper show of "Fruits in Season" at its fortnightly meetings. There are reasons for this which could, and should, be overcome. *Laurence J. Cook, Enfield.*

FRUIT REGISTER.

PEAR MRS. SEDEN.

THE subject of the illustration (Fig. 180), Pear Mrs. Seden, was raised by Messrs. James Veitch and Sons, Ltd., and named after their hybridiser's wife. It is an interesting variety for several reasons. At the first glance, its general appearance suggests an Apple rather than a Pear. Its claim to utility lies in its regular bearing habit when grown on Quince stock and cross-pollenated with another suitable variety, while its late-keeping qualities are excellent if the fruits are left on the tree until the end of October and not pulled prematurely, as is so often the case with late-keeping fruits. When ripe, the quality is good, but the fruits must be in condition to be classed as first-quality, and it is a good plan to remove the fruits from the cool temperature of the fruit room to a warmer place a few days before use. One of the parents of Mrs. Seden—Seckle—imparts its own distinct flavour to this variety, which is in season in January, its usefulness being enhanced by the length of the time (several weeks) when it may be eaten. Naturally, the period is lengthened by bringing fruits into a warmer position at intervals as required.

With me, Pear Mrs. Seden crops nearly every year. It is cross-pollenated by Fertility on one side and Durondeau on the other, all the trees being bushes, on Quince stock. *L. J. C.*

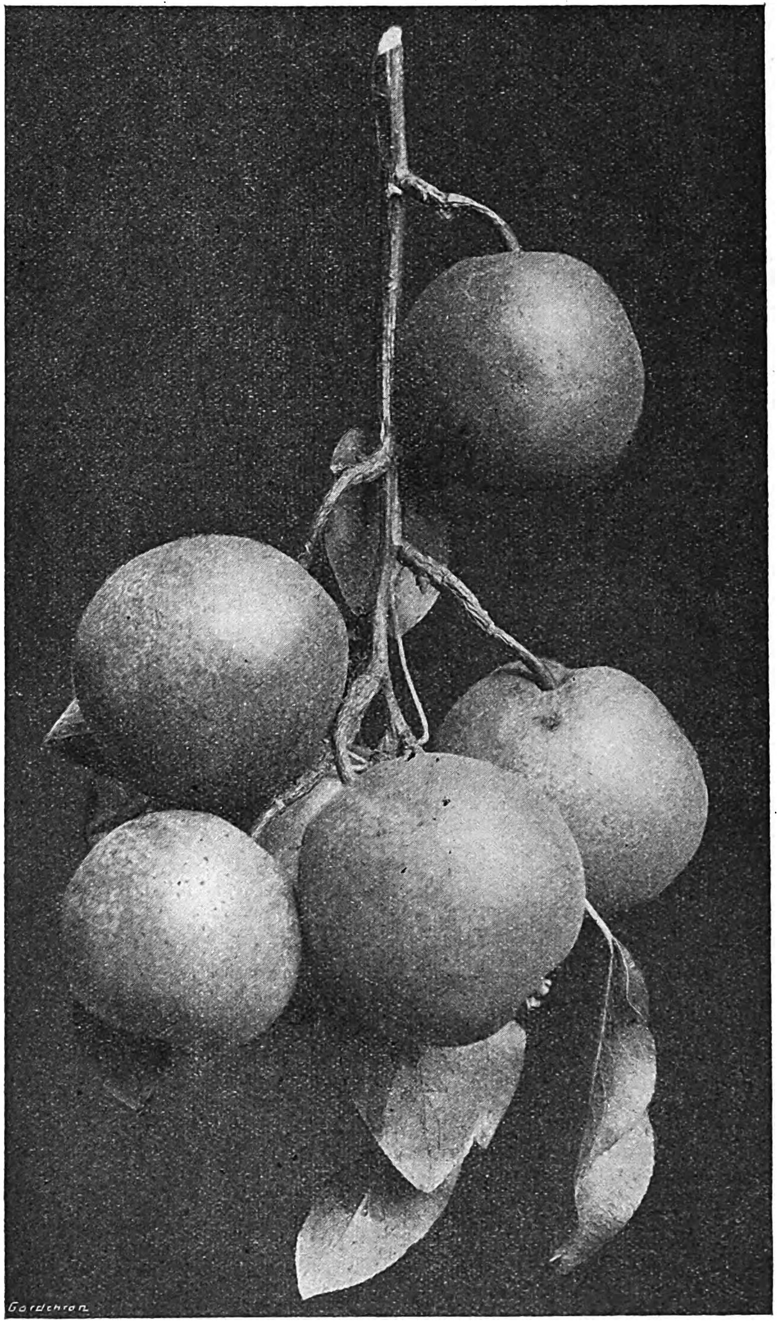

FIG. 180.—PEAR MRS. SEDEN.

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Lilium auratum.—Your correspondent's picture of, and notes on, his Lilium auratum, in *The Gardeners' Chronicle* of September 21 (p. 231), interested me. I enclose a "snap"—not deliberate photograph—of this Lilium growing not two miles from the centre of Manchester, in 1928 (Fig. 174). It had thirty-two flowers on the single stem, which showed no sign of fasciation. Both in 1926 and 1927 it flowered exactly in the same manner and carried the same number of flowers. It came safely through last winter without any artificial protection, but the bulb had split up, or the main bulb may have exhausted itself, leaving offsets only. That I have yet to find out. The bulb was in the first place, seven years ago, planted in the same manner as one would have potted it. More than a foot of soil was taken out, the bottom lifted and thoroughly broken up; next a good layer of broken crocks, then of moss, then a suitable compost, and the bulb. The position was shielded from the noon-day sun by Fern growths. *C. E. Sowerbutts, Crumpsall.*

Lonicera nitida.—As one grows old in gardens, one learns how unwise it is to praise unreservedly and to condemn without mercy. We have read both condemnation and praise of Lonicera nitida. Wisley was one of the centres from which Lonicera nitida was very widely distributed soon after its introduction about 1908 from China, where Mr. E. H. Wilson collected seeds. Our files contain many letters of grateful thanks from recipients and not a few photographs illustrating what has been done with the little plants so sent out. Hedges and screens and single plants many feet high and through are described, evergreen and pleasant to see for their shining leaves and close, neat habit, and valuable for their hardiness. *But*, alas, at Wisley it is easily the worst hedge plant we have ever planted and there are many kinds of hedges here. It would, after years of struggle, scarcely hide a hare. And single plants after a year or two of growth, gradually become miserable objects which ought probably to find their way to the fire, but that cuttings from them are going to give pleasure to others. Wisley is cold, of course, but it was not only the 35° of frost of last winter that killed it back; it is killed back nearly every winter, and yet it thrives in places nearly as cold as Wisley. It behaves badly not in one part of the garden only, but in places over a mile apart and in several different situations. Why? One would like to know. It is mostly in deep, lime-free, silty sand, always moist below, although often very dry and dusty on top, and it is both in the open exposed to all the winds that tear across some of our most exposed sites, and in sheltered spots where winds can scarcely reach it. In all alike it is unhappy. Perhaps those who write to praise will tell us what the secret is, and those who blame will tell us their environment, too, for it is not only in the lime-free soil of Wisley but in some places where the soil is too calcareous for Rhododendrons that it misbehaves. While one knows how well it grows in some places, one cannot utterly condemn, nor can one commend it for hedges while one knows how bad it is in others. *Fred J. Chittenden, Wisley.*

Dessert Plums for Market Growers.—I am much obliged to Mr. H. Dunkin for his suggestions as to choice Plums suitable for market growers (p. 371). I am afraid, however, that the varieties of Greengage mentioned are reliable only in certain districts, and that is why they are not universally grown for market. Years ago several Greengages were tried here in a mixed plantation of Plums, where there could hardly be any lack of pollenators. These included Oullins Golden and Denniston's Superb. All were grubbed out as being worthless, because they did not carry anything like a crop. I am not sure whether Jefferson was tested; but I certainly might give this a trial. *Market Grower.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

November 7 and 8.—The first show of Chrysanthemums which has been held in the new Horticultural Hall, Westminster, was a decided success. The large hall was filled with blooms of all the various types, and the general effect from the dais was very bright and pleasing. Although following such an exceptionally hot and dry summer it is not entirely a Chrysanthemum year, the best of the many large exhibition blooms were of very high quality, and in most instances the competition was, as usual, very keen. To the older school, at any rate, there was a welcome improvement in the quality of the Incurved blooms which were thought to be equal to those of the days when the type was dominant at the shows. The groups of Chrysanthemums, arranged on the floor, were very attractive, but the competition with specimen plants was very disappointing. The many fine trade displays were a most valuable feature of the show and they attracted a deal of well-deserved admiration. As is usual at the Annual Show, a large number of novelties were submitted to the Floral Committee, which awarded nine First Class Certificates. All the arrangements worked smoothly, and although there was a large attendance, there was a welcome absence of the congestion of the first day of former years.

First Class Certificates.

Crimson Model.—A large, well-formed Single. The substantial florets of medium width recurve gracefully at the tips. The colour of this splendid variety is a rich crimson, lightly flushed with maroon at the tips of the florets. Shown by Mr. G. Carpenter, West Hall Gardens, Byfleet.

Hebe.—A large, pinkish-mauve Single which has a narrow, white zone. Shown by Mr. H. Shoesmith, junr.

Florence Bigland.—A market-sized, yellow Japanese variety with florets of medium width. Shown by Mr. H. Shoesmith, junr.

J. Moffatt.—A splendid, large, Single Chrysanthemum with broad, substantial florets heavily stippled with rose-crimson on yellow ground. There is a narrow, yellow zone. Shown by Mr. W. Turnham.

Rise of Day.—A magnificent Incurved Japanese variety of the best exhibition type. The broad, substantial florets curl very attractively, and mostly show the uncommon buff colouring which is lightly tinted with rose-pink. Shown by Messrs. Keith Luxford and Co.

Severn.—A fine, large, Japanese variety. The broad florets are of rich chestnut colour and the dull yellow reverse shows in the centre of the flower and on the more mature outer florets. Shown by Mr. H. Woolman.

Thames.—A large, Japanese variety of exhibition size, and blush-mauve colouring, with a silvery reverse. Shown by Mr. H. Woolman.

Yellow Monument.—A good, medium, yellow sport from the well-known white, Incurved variety. Shown by Mr. T. Stevenson.

Lucifer.—A market Japanese variety of glowing, rich crimson colour. Shown by Mr. H. Shoesmith, junr.

Open Classes: Trade excluded.

There were four entries in the class for thirty-six Japanese blooms, in twelve varieties, staged in vases. The quality was exceedingly good, and the first prize exhibit of the Dowager Lady Annaly (gr. Mr. D. Cameron), Holdenby House, Northampton, was a triumph of cultural skill. The varieties were Miss Ada Ellis, Red Majestic, Queen Mary, Birmingham, Victory, W. Rigby, Duchess of Westminster, Majestic, Yellow Majestic and Aquitania. The second prize was awarded to The Hon. Sir John Ward, K.C.V.O. (gr. Mr. C. Beckett), Chilton, Hungerford, whose very best blooms were W. Rigby, Red Majestic, Charles Davis, Mrs. Algernon Davis, Julia and Mrs. A. Holden. Viscount Hambleden (gr. Mr. W. Turnham), Greenlands, Henley-on-Thames, was third, and he showed excellent vases of Princess Mary, Majestic, Queen Mary, Charles Davis, Red Majestic, Marjorie Woolman, Mrs. Gibson and R. C. Pulling.

Only three exhibitors staged eighteen Japanese blooms in six varieties of stipulated colours, and here the Dowager Lady Annaly was again first, with another splendid exhibit. The varieties were Mrs. P. Murray, Majestic, Yellow Majestic, Miss Ada Ellis, Birmingham and Queen Mary. The Hon. Sir John Ward was a good second, and his collection was composed of Queen Mary, Red Majestic, Julia, Yellow Majestic, Birmingham and Mrs. Algernon Davis. Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex, who was third, had fine blooms of Red Majestic, Charles Davis and Thalia.

Only the Hon. Sir John Ward staged an exhibit in the class for twelve varieties which had received the Society's First Class Certificate during 1927 and 1928. This was a very disappointing class, and it would seem that the only large Japanese varieties of the two years worth growing are Mrs. F. C. Maples, broad petalled, incurving Japanese; Blackpool, crimson-maroon; Mrs. K. Luxford, a compact, narrow-petalled, rich chestnut, and Charles Davis, long, drooping, rich yellow; for the others were poor.

The Holmes Memorial Challenge Cup class was not so strong as usual, for there were only two exhibitors, who staged exceedingly good blooms, although both were a little weak in the crimson varieties. The Hon. Sir John Ward was first, and his exhibit included Victory, Mrs. G. Drabble, Mrs. Harold Wells, Queen Mary and Mrs. A. Brown, whites; W. Rigby, Lady E. Miller, Charles Davis and Yellow Majestic, yellows; Miss D. C. Athron, Majestic, Marjorie Woolman, Red Majestic and Worcestershire, shades of chestnut. In his second prize exhibit, Viscount Hambleden staged particularly good blooms of R. C. Pulling, Tom Abbott, W. Rigby and Golden Majestic, yellow; Red Majestic, Edith Cavell, Majestic, chestnut shades, and Mrs. G. Drabble, Queen Mary and Louisa Pockett.

There were seven exhibits of twenty-four Japanese varieties, and in this class the colours were better balanced, and those of bright colours were very prominent. Lady Melchett, D.B.E. (gr. Mr. W. Petty), Melchet Court, Romsey, was first, showing especially good blooms of Southampton, Birmingham, W. Rigby, Miss Ada Ellis, Victory, Mrs. R. C. Pulling, Julia, Princess Mary, Charles Davis, and a good crimson seedling of Mrs. George Monro type. In a good second prize exhibit the Dowager Lady Annaly staged Mrs. G. Monro, Birmingham and Thalia, rich crimsons; W. Rigby, Mrs. R. C. Pulling, Yellow Majestic and Princess Mary, good yellows; Victory and Queen Mary, whites; Majestic, Aquitania, Julia and Marjorie Woolman, shades of chestnut. Mrs. Thomson (gr. Mr. L. Barnard), Long Walk House, Windsor, was a good third, and her very best blooms were of Aquitania, Mr. T. Slack, Red Majestic, bright chestnut shades; Princess Mary, Boule d'Or and Yellow Majestic, rich yellows.

The experimental class was again very successful, and the larger boards which allowed ten inches for each bloom displayed the beauty of the excellent specimens to the fullest advantage. The first prize was won by the Dowager Lady Annaly with a superb exhibit which included Majestic, Mrs. B. Carpenter, Southampton, Miss Ada Ellis, Red Majestic and Thalia, of great merit. Mrs. C. Pearson (gr. Mr. C. Hodgson), Acton Place, Sudbury, Suffolk, was a good second in this important class. The very best specimens were of Marjorie Woolman, Mrs. C. Davis, W. Rigby, Red Majestic and Thomas W. Pockett. Mrs. Thomson, who was third, won the first prize in the class for six Japanese blooms with magnificent specimens of Majestic, Red Majestic, Yellow Majestic, Birmingham, Queen Mary and Mrs. B. Carpenter. The second prize exhibit of Mr. George Curran, Nottingham, was of uneven quality, but he had really superb blooms of Lady Talbot, Hugh Mitchell, Tom Abbott and William Turner. The third prize was awarded to James Armitage, Esq. (gr. Mr. R. Jones), Blora, Harrogate, for six very large blooms which, however, lacked the high quality of the first and second prize winners.

The colour classes, which each require three blooms of one variety staged in vases, were especially successful, as well as instructive, and many magnificent blooms were shown. The best white variety was Mrs. Gilbert Drabble, shown by the Dowager Lady Annaly; Louisa Pockett, by Lady Juliet Duff (gr. Mr. H. Weaver), Coombe Court, Kingston, Surrey, was the second best; and Mrs. Harold Wells, shown by the Hon. Sir John Ward, was third. Superb blooms of Birmingham, shown by J. H. Plaxford, Esq. (gr. Mr. A. Johnson), Manor House, Great Nelmes, Hornchurch, was the best crimson variety, while Mrs. George Monro, shown by the Dowager Lady Annaly, was second in this excellent class, and Mr. A. Holden, shown by the Hon. Sir John Ward, was third.

The Dowager Lady Annaly showed, in Princess Mary, the best three yellows. Viscount Hambleden was second with Yellow Majestic, and Mr. George Curran was third, with Shirley Golden. The class for any colour other than crimson, yellow or white, was also well contested, and here J. H. Plaxford, Esq., was first with Thomas W. Pockett; Mrs. C. Pearson was second with Majestic, and the Dowager Lady Annaly was third with Red Majestic.

The Incurved varieties were of decidedly higher quality than of recent years. The best vase of six blooms in not fewer than three varieties, was shown by James Armitage, Esq., who included beautiful specimens of Mrs. P. Wiseman, Romance, Progress and Calypso. Mr. George Curran, was a good second, and he had fine blooms of Romance, Percy Wiseman and Progress.

The Holmes Memorial Cup was won by Mr. George Curran, whose eighteen splendid blooms in vases included Progress, Percy Dove, Mrs. Brice, Ondine, Romance and Percy Wiseman. Gus Mayer, Esq., (gr. Mr. Cottam), Woldingham, was second, with Monument, Ondine and Romance. The same high quality was continued in the Incurved varieties shown on boards, where the best twelve were shown by Mr. George Curran, who included Mrs. Percy Wiseman, Romance, Ondine and Mrs. Brice. Gus Mayer, Esq., was second. Of the four exhibits of six Incurved varieties, the best was shown by James Armitage, Esq., who had excellent blooms of Mrs. Percy Wiseman, Advance, Calypso, Ondine, Mrs. F. Ashworth and Progress. Mr. George Curran, was second with Mrs. G. Danger and Ondine of splendid shape; and Gus Mayer, Esq., Whistler's Wood, Woldingham, was third.

The best six vases of Decorative Chrysanthemums were shown by Mrs. Winterbottom (gr. Mr. G. Brown), Oakley Park, East Grinstead, who included Uxbridge Pink, In Memoriam, Freda Bedford and Jean Pattison. Viscount Hambleden was second with such sorts as In Memoriam, Sunshine, Monument and W. Turner. Gus Mayer, Esq., was first with six vases of Anemone blooms.

The Pompon varieties were not quite so well shown as in former years, although J. W. Hussey, Esq., Matford Lodge, Exeter, brought his usual pretty first prize six vases of disbudded varieties. Gus Mayer, Esq., was second.

Single Chrysanthemums, in the open classes, were shown in great excellence by Mrs. Yarrow (gr. Mr. A. Robertson), Abbey Road, St. John's Wood, London, who was first with nine vases and with six vases of large Singles of superb quality. In the class for nine varieties, Mrs. Yarrow's exhibit included Isobel Felton, Fusilier, Mrs. J. Palmer, W. Knight, Rona, Rita and Kitchener. H. E. Miller, Esq. (gr. Mr. J. Cheer), Red Gables, Purley, was second, showing Golden Seal, Molly Godfrey and Frank Brice. Mrs. Guthrie (gr. Mr. T. Burr), East Haddon Hall, Northampton, was third. The large Singles so magnificently shown by Mrs. Yarrow in the class for six varieties were Rita, Audrey, Fusilier, W. Knight, Rona and Mrs. J. Palmer. Mrs. Brousson (gr. Mr. A.

Wakeling), Newton House, Hampstead, showed, in a second prize collection, Supreme, Molly Godfrey and Mrs. J. Palmer. Viscount Hambleden was third. Lady Juliet Duff was first with a beautiful vase of mixed small-flowered Singles.

The three exhibits from Affiliated Societies were of particularly good quality and illustrated the values of the different types of the flower. The first prize was won by the Finchley Chrysanthemum Society (Secretary, Mr. H. A. Wenden). The large-flowered type was well represented by magnificent blooms of W. Rigby, Mrs. Gilbert Drabble, Julia and Mrs. Algernon Davis; while the vases of Singles, Decorative and Anemones were equally meritorious. The Croydon Horticultural Society (Secretary Mr. T. Aley) was second, and the good large exhibition varieties included H. E. Converse, W. Rigby, R. C. Pulling, Red Majestic and Mrs. Gilbert Drabble.

The two Decorative groups of Chrysanthemums with foliage plants, arranged on the floor, were totally distinct in style of arrangement, but both attracted much attention. The first prize was won by Gus Mayer, Esq. (gr. Mr. R. Cottam), Whistler's Wood, Woldingham, with a very graceful display in which the well-grown Codiaeums (Crotons) and various greenhouse Ferns were of considerable artistic value. E. H. Meyerstein, Esq. (gr. Mr. W. Clapham), Morant Court, Sevenoaks, was awarded the second prize for a group which included many admirable blooms.

OPEN CLASSES.

The most important competition in this section was for the George Monro Challenge Cup, for the best twelve vases of large, Single Chrysanmums, distinct. There were five collections staged, and the trophy was deservedly awarded to Mrs. Yarrow (gr. Mr. A. Robertson), Abbey Road, St. John's Wood, for a grand set. Her varieties were Molly Godfrey, W. J. Palmer, Susan, Rita, W. Knight, Reginald Godfrey, Robert Collins, Rona, Fusilier, Bronze Molly, Sportsman and Isobel Felton. Mr. H. Woolman was second, and his best were Yellow Stewart Smith, Lady Aileen, Golden Seal and Susan. Third, E. Martin-Smith, Esq. (gr. Mr. G. J. Miller), Codicote Lodge, Hitchin.

There was only one exhibit in the class for a display of cut Decorative Chrysanthemums, and this was by Gus Mayer, Esq., who was awarded second prize.

Gus Mayer, Esq., was first for six vases of Anemone Singles, showing Bronze Thora, Mabel Weston, white; Ceres, yellow; Thora, deep rose; Aphrodite, lavender-pink; and Godfrey's Perfection, pale flesh; while in the class for six vases of large Singles, distinct, Mrs. Yarrow was again successful, with especially magnificent blooms of Crimson Dawn, Rita, Mrs. Edith Smith and Mrs. J. Palmer; second, Lady Vansittart Neale (gr. Mr. W. McCaul), Bisham Abbey, Marlow; third, S. Wallrock, Esq. (gr. Mr. W. Holloway), The Manor House, Stanmore.

There were eight entries in the class for three vases of large Singles, distinct, the first prize winner being Mrs. Guthrie (gr. Mr. P. Burr), East Haddon Hall, Northampton, with grand blooms of Golden Seal, Susan and Lady Dymond. The Dowager Lady Annaly was second; and E. Robson, Esq. (gr. Mr. H. Jones), Avenue Road, Regent's Park, third. C. M. S. Sangster, Esq. (gr. Mr C. E. Fear), Green Lodge, Kew Road, Weston-super-Mare, showed the best specimen Chrysanthemum —a grand floriferous plant of Mrs. R. Luxford; second, Lady Juliet Duff (gr. Mr. H. Weaver), Combe Court, Kingston, with a good specimen of Viscount Chinda.

AMATEURS' CLASSES.

Many grand blooms were shown in these classes, in the majority of which competition was keen.

For twelve Japanese blooms, distinct, Mr. George Curran, Sycamore Inn, Nottingham, was first with an excellent set, in which Lady Talbot, General Petain, Mrs. R. C. Pulling and Princess Mary were outstanding; second, Mr. B. Carpenter, 58, Elm Park Road, Finchley, whose best were W. Rigby, Miss Ada Ellis and Marjorie Woolman; Mr. W. Staley Gosport, Hampshire, showed the leading set of six Japanese blooms, distinct, his varieties being Mrs. G. Drabble, Mrs. B. Carpenter, Boule d'Or, Cissie Brunton, Majestic and Yellow Majestic; Mr. George Curran was a close second, and the third prize was awarded to Mr. W. E. S. Debenham, Wimbledon.

John Rowlett, Esq. (gr. Mr. H. Hammond), Gwynnicote, Sanderstead, Surrey, well deserved the first prize for his set of Incurved blooms, for he had grand examples of Romance, Ondine, Progress (two), and Mr. G. Denyer (two), and Mr. G. Curran was again a close second, his best being Romance and Captain Kettle.

Mr. G. Curran was first for three vases of Japanese blooms, again showing grand specimens; second, Mr. A. Pettengell, who secured the first prize for six vases of Singles, with Mr. S. W. Wickens a close second, his blooms of Susan and Cleopatra being exceptionally good.

This latter exhibitor was deservedly first in the class for twelve Japanese blooms, not fewer than eight varieties, his sorts being Mrs. A. Holden, Yellow Majestic, Miss Ada Ellis, Queen Mary, Mrs. E. H. Pearce, Majestic, R. C. Pulling, Princess Mary, Julia (two), C. Davis and B. Carpenter. Mr. G. Curran was second, and Mr. E. A. Crick, third. In the next class, for six Japanese blooms, distinct, Mr. B. Carpenter was first with splendid blooms of Victory, W. Rigby, Miss Ada Ellis, Mrs. A. Holden, C. Davis and Mrs. Algernon Davis; second, Mr. E. J. Elms, Byfleet; third, Mr. E. R. Crick.

Mr. G. Curran was the leading exhibitor of six Incurved blooms (Section B), with Mr. S. W. Wickens, second, and Mr. H. Bull, third; while for three Japanese blooms, the first prize was awarded to Mr. W. E. S. Debenham, with Mr. G. Curran second. Mr. S. W. Wickens showed the best three vases of Singles.

DECORATIVE CLASSES.

The many dinner table decorations of Chrysanthemums were mostly daintily arranged and very effective. The first prize was won by Gus Mayer, Esq., with a graceful arrangement of small-flowered Singles and autumn foliage. Mr. T. Clark, South Chingford, was second, with small, yellow Singles and foliage; and C. M. S. Sangster, Esq., Green Lodge, Weston-super-Mare, was third. The baskets of Chrysanthemums with appropriate foliage were exceedingly artistic. The first prize was won by Mrs. T. Clark, and Mrs. C. Pearson was a good second. In the class for an arrangement of Chrysanthemum blooms suitable for a hall table or sideboard, Gus Mayer, Esq. was first with a good arrangement in a large copper bowl, and he also had the best large vase of Chrysanthemums. Mr. George Curran, was first in the class for a vase of five blooms of Japanese varieties; and S. J. Kirby, Esq., Hatch End, was second. H. E. Miller, Esq., had the best vase of large Single Chrysanthemums, and Gus Mayer, Esq., was first in the class for Singles arranged for effect.

NON-COMPETITIVE EXHIBITS.

These contributed greatly to the success and general attractiveness of the show, for they were arranged around the walls of the hall and several magnificent collections were set up.

Messrs. H. J. Jones, Ltd., staged a spectacular group which included grand blooms of many Japanese sorts, together with Incurved, large Single, and Decorative varieties. Good Japanese Chrysanthemums were W. Rigby, primrose; Mrs. G. Drabble, white, very fine; Miss Ada Ellis, pink; Daily Sketch, Edith Cavell, and others, and these were arranged in large sheaves as a background to the group. Monument, Captain Kettle and Percy A. Dove were outstanding among Incurved sorts, while their large Single Chrysanthemums, in grand condition, included Golden Seal, Susan, Molly Godfrey, Rose Molly, Mary Edwards and Mrs. Joyce Moore. This firm also showed an interesting set of Pompon varieties, notable among which were Gold Climax, Firebird, Mr. W. Sabey, Ethel, White Doty and Lilian Doty. The whole exhibit was well arranged, and the blooms were of grand quality.

Next to this exhibit was another extensive group set up by the King's Acre Nurseries. At the back they had huge sheaves of such Japanese sorts as Yellow Majestic, Mauretania, Mrs. H. Wells, Red Majestic, Mrs. R. C. Pulling, Birmingham and Belle Chinoise, with large vases of these and other sorts dotted throughout the group. The best Single varieties included Enid, rich orange-bronze; Yellow Stewart Smith; Daphne, pink; Phyllis Cooper, palest primrose; J. H. Blyth and White Model, while several good Decorative sorts were also shown in this group.

At the far end of the hall Messrs. Keith Luxford and Co., Ltd., had a splendid group of numerous varieties. In the background were handsome pillars of Japanese Chrysanthemums, notable among which were Miss D. L. Athron, Mrs. R. C. Pulling, T. W. Pockett, Thalia and Birmingham; while forming a bank beneath these were numerous Incurved and Single varieties, broken here and there with vases of Japanese sorts. Among Incurved varieties we noted Romance, rich yellow; Mrs. S. Dove, light pink; Tiger, golden-yellow; Queen of the Pinks, Golden Glory, Progress and Alice Honour, while the best of the Singles were the glorious Kirkland's Crimson, Lady Sanders, a fine yellow; Mrs. F. Brill, deep rose; Catriona, Sonia, rich pink; Absolute, orange-scarlet; Winsome, with dainty, star-like, light crimson blooms, and Nona, white.

In the large group set up by Messrs. W. Wells and Co. Japanese sorts included Charles Davis, Yellow Davis, Princess Mary, Lady Edward Miller, W. Turner, Mrs. C. G. Kelly, Mrs. A. Davis and Mrs. Keith Luxford; while the best of the Single varieties were Jessica, Westhall Gem, Golden Seal, Golden Absolute, Juno and Supreme. The best of the Decorative sorts were Red Jean Pattison, Mrs. Fieldwick, Mrs. R. F. Felton, and Golden Marvel; they also showed Incurved and Pompon varieties of merit.

One of the most striking groups in the hall was that arranged by Mr. A. G. Vinten, who showed Decorative and Single sorts chiefly, in good condition and richly coloured. Striking among the former were Golden Marvel, Yellow Marvel, Golden Glory, Golden Wonder, Shirley Scarlet, Merrivale and Balcombe Pink, while good Single sorts were Jessica, G. Fox Wilson, Daphne, Golden Seal, J. H. Blyth, Phyllis Cooper, very fine, and Exmouth Pink. He also showed several small-flowered Incurved sorts, notably Alice Honour, Ivy Gay, Ra, Progress and H. W. Thorp. Messrs. Cole and Son staged a small group of Chrysanthemums of various types.

Mr. H. Woolman set up a group next to that arranged by Messrs. Keith Luxford and Co. It formed a tall bank, with good blooms of Japanese varieties at the back; among these we noted Mr. T. Slack, Thalia, Lancashire, Iris Cross, Birmingham, Queen Mary and Daily Sketch. Good Single sorts in this group were Mrs. A. Graham, Raleigh, Exmouth Pink, Yellow Prince, Golden Seal and Everlasting. Sultan, Flame and Mayford Cream were choice Decorative varieties.

An extensive collection of later varieties o early-flowering Chrysanthemums from the N.C.S. trials was staged by Mr. W. Hatch, Cookham, Berkshire, and showed the value of these for providing blooms for cutting over a long season in gardens where no glass is available, and with only light protection.

Mr. W. Yandell set up a collection of hardy Decorative sorts, his best being Amorel, F. J. Woods, Brightness, Red Almirante and Cranford Yellow. Mr. L. Mills arranged a handsome group of superb Decorative Chrysanthemums in pots. There were masses of Jean Pattison, Caprice du Printemps, Tapis d'Or, Kathleen Thompson, Uxbridge Pink, Blanche du Poitou, and Rose Chocod. He had large ornamental baskets of Jean Pattison, Uxbridge Bronze and Dorothy Wilson at the back, with mounds of R. C. Pulling, Liverpool and others between them.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

The Autumn Exhibition of the French National Horticultural Society was held from October 25 to November 3 at the usual riverside rendezvous, Cours-la-Reine. Chrysanthemums and Dahlias—the latter being especially numerous owing to the mild weather—held pride of place, but fruits were also plentiful and well varied.

Chrysanthemums.

The firm of Vilmorin-Andrieux et Cie, whose exhibit was non-competitive, had, as usual, a very fine display of Chrysanthemums. As in former years, the decoration was of classic style, the magnificent group, with a hollow centre, occupying the whole central portion of the marquee, with pot plants trained in various ways, and faultless specimens in pyramids, cones, etc., or with single blooms. Among others were noted André Bruhier, pink; Marie Dufour, white; Oubanghi, yellow; Cettois, pink; Hurepois, yellow; as border plants Rufisque, pinkish-white; Purpurine, purple, and Gerbe d'Or, yellow; with Blanche Poitevine and Aviateur Cornu, both market plants which are very popular in France. The certificated novelties of the firm are mentioned below.

Madame Veuve Martin, of Champigny, sent a very fine display, excellently arranged, composed of recent varieties including Lutèce, pink; Beau Soleil, a very fine bright yellow; Viola, violet with paler reverse; Souvenir de G. Péchou, old rose, chamois reverse; and Madame P. Féron, garnet-red.

M. Laumonnier-Férard, of Paris, had a massive group at the end of the marquee, composed solely of Single varieties, which made a fine splash of colour. Among the varieties noted were Havrais, pink; Marocain, brownish-yellow; Caennais, pink; Orléanais, yellow; and Miromesnil, white.

From M. Lochot, of Orsay, there was a pretty group containing the now well-known varieties Ville de Strasbourg, pink, and Chrysanthémiste Lochot, with Madame Joseph Raimbaud, a yellow sport from Ami Paul l'Abbé which, when first flowering, seems preferable to R. C. Pulling. There was also a collection of Singles, known as Gerbera-flowered, or Anthemis-flowered, including Marinette, ochreous-red; Pierrette, chrome-yellow; and Yvette, old rose, charming little flowers, almost hardy, of which several were very fragrant. M. Vialette, of St. Germain-en-Laye, sent a very beautiful exhibit of cut flowers, including Belle Aunisienne, pure white with large rays; l'Albigeois, deep mauve, with pink reverse; Madame Lhuile, carmine and lilac; Madame Charlot, milk-white; Majestic, brownish-yellow; and Rose Day, pink.

A large collection of plants in pots was exhibited by M. Charrier, of Tours, including Petite Marie, white; Maréchal Foch, pink; Tooben, pink; Le Phare, pinkish-white with pointed florets; and Yvonne Clément, yellow, with a greenish centre. M. Morin, of La Rochelle, showed Colombine, white; Hermine, yellowish-white; Madeleine Morin, yellowish; De Cheverny, pink, with curled petals; and Candeur Rochefortaise, feathery, white.

A very beautiful display of cut flowers was furnished by M. Laine, of Igny, including Maurice Lhuile, yellow; Admiral Beatty, white; Deuil de Paul l'Abbé, pink with silvered reverse; Philippe Rivoire, and Ami Paul l'Abbé. From M. Lemasson, of Limoges, came some fine pot plants, namely Calypso, pink, and Euterpe, red and gold, and as cut flowers, Petit André and Salambo, white, with elongated florets.

M. Fourdrignier sent from his Pierrefitte nurseries, cut flowers of the following varieties:—Mrs. G. Drabble, white; Captain Fox, brown; Deuil de Nungesser, pink with silvered reverse; Robert Bolli, pink incurved, and R. C. Pulling. From the Igny Horticultural College (Principal, M. Vialla) came some very fine cut flowers, including R. C. Pulling, Ami Paul l'Abbé, Captain Fox, Léonie Legrand (white, with green centre), and M. J. Paquin, brownish-yellow. The Paris Municipal Horticultural College, St. Mandé (Professor M. Duvernay), showed two groups of pot plants in the following varieties, among others, Edith Cavell, yellow; Louisa Pockett, white; and Président Millerand.

In the competition for the C. P. Cup, offered for the largest flower in the exhibition, M. Fourdrignier, with the variety Ville de Strasbourg (pink), tied with M. Laveau, who showed H. E. Converse, a yellow incurved variety; and the second place was won by M. Féron, for the variety Souvenir de G. Péchou, old gold. Some cut flowers of Ville de Strasbourg, which were still looking very fresh, were stated to have been cut three weeks previously.

As usual, the Committee appointed to award Certificates of Merit to novelties was exceedingly generous, too much so, in our opinion, for no fewer than forty-three Certificates were issued! Among the finest of these varieties were Cochinchinois, Incurved, pink and silver; Algérien, pink, tinged with chamois; and Marocain, deep red, with gold reverse; these three shown by the firm of Vilmorin. Souvenir de Louis Lemaire, pink and white; Dr. Desmaroux, red and gold; and Neige d'Octobre, pure white; exhibited by M. Lochot, Orsay. Jeanne Carlisle, red, with paler reverse; Lisieux, pale pink, white centre, long florets; and Côte d'Or, a very fine yellow; shown by Madame Vve. Martin, of Champigny. Madame Oscar Dahl, pure white; Mdlle. Simone Decault, pink; Neige Rochellaise, white; and Chrysanthémiste Buisson-Metra, reddish-brown, all exhibited by M. Morin, of La Rochelle, the two last-named varieties as market plants. Finally, may be cited three varieties presented by M. Lemasson, of Limoges, namely, Madame G. Romet, an Incurved pink variety, with paler reverse; Ami Lepeu, red and gold, and Frégoli, red, with the florets paler on the reverse side.

Dahlias.

The absence of early frosts enabled a number of fine groups of Dahlias to be exhibited. MM. Cayeux et Le Clerc, of Paris, who are well-known specialists, made an excellent display, comprising not only Dahlias of their own raising, but most of the more recent varieties from all sources. Among others were included Président Fernand David, a red Cactus variety, golden, with yellow centre; Flamboyant, cardinal-red, with gold reverse; Rosalie Defrance, a beautifully erect carmine flower; and Rapsodie, pink. Among the varieties known as "Decorative" were to be noted Autumn Gem, salmon; Rosenkönigin, pink; Fournaise, orange-yellow; and Loïe Fuller, a curious brownish-yellow and gold colour. Among American varieties were Jessie Prescott, orange; John Lewis Childs, a peculiar streaked red and yellow variety; Faith Garibaldi, pink; Marmion, yellow; and Trentonian, coppery.

The firm of Vilmorin also showed a considerable collection, arranged in white baskets, including Amun Ra, yellow, shaded with red; de Schelde, red; Jongleur, mauve; Calcutta, flesh-pink; Ramire, red; Polar Bear, pure white; Mellila, mauve; Arizona, shrimp-pink; and Macao, yellow. From M. Romageon, of Saint Prix, a nice group was sent comprising, among other varieties, Sphinx, brownish-yellow; Spartacus, deep red; Démoniaque, also deep red; Cocorico, red, and King Harold, red; and Pride of San Francisco, blood-red.

M. Reboux, of Montigny les Cormeilles, showed Vanité, pinkish-yellow; Nagels Roem, yellowish-cream; Insulinde, yellow; and M. J. Waterken, deep red; while from M. G. Truffaut, Versailles, came Wizard of Oz, pink; Bordeaux, red; and Siskijou, a variety with enormous blooms, pink in colour but yellow at the base of the florets. M. Thiébaut, of Paris, contributed Rheinische Mädel, a curious pink Cactus variety, with white tips.

Several novelties were certificated by the Floral Committee, and Certificates of Merit were awarded to Chasteté, pure white, and Ehrenpreiss, a pretty pink Cactus variety, shown by MM. Cayeux et Le Clerc; Charivari, a fine magenta-red variety presented by M. Romageon; and Elisa Clark Bull, a beautiful American Decorative white Dahlia, shown by M. Thiébaut.

Various.

The two beautiful groups of tuberous Begonias, which can always be relied upon, from MM. Vallerand Frères, of Taverny and Asnières, and M. Billard, of Vésinet, respectively, were displayed. The first-named firm had set up their exhibit as a border in which the different varieties were planted in triangles of colour, clearly separated by narrow bands of turf; the second had formed a round group, in which the varieties were shown in sections according to colour, the effect being extremely gay. Among the tuberous Begonias noted, which included both single and double sorts, and comprised many different colours, such as pink, salmon, white, orange, copper-colour, etc., were B. cristata, pink (very fine), Guillaume Eysser (red), and Souvenir de Guynemer (double, pink).

There were two exhibits of Roses, still very beautiful in spite of the advanced season, brought by M. Leveque, of Ivry, and M. Defresne, of Vitry, respectively; in the display of the first-named firm were several recent varieties, including Director Rubio, magenta-red; Jules Gaujard (Pernetiana), red; Madame Henri Queuille (Pernetiana), shrimp-red; Maréchale Pétain (Hybrid Tea), cochineal-red; and Li Bures (Pernetiana), red and yellow.

The collective exhibit of the Paris district nurserymen's syndicate is worthy of special mention; the products were of very fine quality, varied, and effectively arranged, and each separate exhibit bore, ih addition, the name of the variety, that of the individual exhibitor. Besides Chrysanthemums and Dahlias there were some very fine Kentia Palms and foliage plants; various Ferns; Adiantum concinum; a vigorous specimen of Alsophylla splendens; and Nephrolepis President Roosevelt; also Heaths, some fine Lilies, white Lilac, and sheaves of Gladioli.

M. Thiébaut, of Paris, showed a beautiful collection of Cacti and various succulent plants, making a very pretty ensemble arranged in small specimens on a ground-work of pink sand; these plants appear to be becoming popular again in France. Among the specimens shown were Pilocereus senilis, Cephalocactus Hoppenstedtii, Echinocactus Grussonii, Ferocactus latispinus, and Cereus perluscens with a bluish stem.

M. Weiss, of St. Cloud, showed, by means of a decorative and very artistic display in the modern style, how to utilise Cacti and other succulent plants in attractive rectangular vases in tones of white and pink on a silver ground, against a wide red background. Echinocactus, Opuntias, Aloes, and Mesembryanthemums, were effectively arranged. M. Weiss also showed a small rock garden, with various alpine plants, and his usual series of little "Japanese" garden scenes in miniature, with tiny trees and alpines. Similar exhibits were shown by MM. Posmoury, of Colombes, and Kolb, of Meudon.

M. Charlot, the Paris florist, had composed an immense sheaf, very lightly arranged, in the centre of a bowl, with long, pendant branches decorated with blue Vandas, yellow Oncidiums, and pink Cattleyas—these being the only Orchids in the exhibition. M. Dijon, another Paris florist, brought some very pretty little miniature table decorations representing tiny gardens.

Fruits.

The exhibits of fruits were very numerous and of excellent quality. M. Nomblot-Bruneau, of Bourg-la-Reine, brought a fine collection of Pears and Apples, among which, besides the better-known varieties, there were some less common, such as Apples Fenouillet, red; Reinette des Carmes, red; Reinette Dorée, Api Noir, and Titowka, pretty red fruits with streaks.

From the National College of Horticulture at Versailles (Principal, M. Pinelle), there were some very fine specimens of commercial fruits, such as Pears Charles Ernest, Passe-Crassane, Duchesse d'Angoulême, Beurré Diel and Doyenné du Comice; Apples Calville, Reinette du Canada and Peasgood's Nonesuch. There were also good specimens of streaked Beurré Gris and

Doyenné du Comice, and of the Apple Bismarck, a very good red colour. The firms of MOSER, Versailles, and CROUX, of Chatenay, also sent important exhibits of Pears and Apples, in which were noted Pears Duchesse Bérard, enormous fruits and very brown; Madame Bellet, a pretty colour; Alexandrine Douillard, and Merveille Ribet; and of Apples, Hower, a fine red; Maiden's Blush; de Grignon, and Saint Laurence, well-coloured.

M. DUPOIRIER, of Quincy-Ségy, sent fine specimens of Apples Belle Joséphine and Chataignier, and an enormous Pear, Virginie Baltet. M. SALOMON, of Thomery, had fruits of Doyenné du Comice and Passe-Crassane, of an average weight of 600 grammes. M. GAUTILLOT, of Montreuil, showed Apples Reinette du Canada, Api Rose, Emperor Alexander, and Belle du Hâvre, decorated with vignettes; and Peaches Salway and Belle Impériale.

In the collective exhibit of the students of the Arboricultural Course at the LUXEMBOURG GARDENS (Professor M. Cuny), there were some perfect specimens of Doyenné du Comice Pears; Calville Blanc and Canada Gris Apples were also excellently shown. Very fine exhibits of commercial fruits were sent by the IGNY HORTICULTURAL COLLEGE (Principal, M. Vialla), and by M. LAMBERT, of Soissons.

Grapes were well shown by M. Parent, of Rueil, by M. SALOMON, of Thomery, and also by the THOMERY VINE GROWERS' SYNDICATE. Among the black Grapes shown were Alicante and Black Muscat; Foster's Seedling, Général Galliéni, Gradiska, and Angelino.

There was one bunch of Balafant (white) weighing two kilos. The curious variety Kadin Bapmak was noted, with white, pointed, elongated berries; and the perfect bunches of Chasselas doré de Fontainebleau shown by the THOMERY VINE-GROWERS' SYNDICATE were well worthy of mention.

M. CHAPRON, of Caen, showed pot plants laden with fruits, including the best varieties of Strawberries, such as Saint-Fiacre, Général de Castelnau, Abondance, etc., and a new variety, Madame Raymond Poincaré, with brightly coloured fruits.

There were some very fine exhibits of vegetables, notably that of Messrs. VILMORIN-ANDRIEUX ET CIE., always so complete and decorative. The IGNY HORTICULTURAL COLLEGE also showed vegetables, including some red Malaga Batatas of enormous size. M. JOALLAND, of Nantes, showed a large collection of Potatos comprising 210 varieties.

TREES AND SHRUBS.

The usual firms showed trained fruit trees, namely, MM. NOMBLOT-BRUNEAU, of Bourg-la-Reine; CROUX, of Chatenay; MOSER, of Versailles; and ALAVOINE ET SOULIER, of Jouy-en-Josas. Trees were shown in palmettes, vases, cylinders and pyramids; there were Pear and Apple palmettes in nine stages, and many other wonderful specimens of the art of training and grafting.

There were excellent exhibits of ornamental trees and shrubs from MM. ALAVOINE ET SOULIER, of Jouy-en-Josas; MARTIN LECOINTE, of Louveciennes; LÉCOLIER, of La Celle-Saint-Cloud; THUILLEAUX, also of La Celle-Saint-Cloud; and LIÈVRE, of Vitry. Some fine examples noted were of Ligustrum elegantissimum var. aureum, Thuyopsis dolabrata var. variegata, Cedrus Deodara var. robusta (weeping); Euonymus radicans var. Silver Gem, Sequoia gigantea var. pendula, and Ilex nigricans var. marginata aurea.

M. DUFAY, of Chevry-Cossigny, sent a pretty collection of Osiers and Poplars, saplings of Salix vitellina (yellow wood), Salix fragilis (brown wood), and S. viminalis (green wood), with photographs of the plantations and showing the basket-makers' methods.

As usual, in the section for sundries a great number of exhibitors were showing their goods, representing almost all the materials and tools used in horticulture.

The First Class Grand Prix d'Honneur of the President of the Republic was awarded to the firm of CROUX ET FILS, for their exhibit as a whole (fruits, fruit trees and ornamental trees and shrubs). The second Grand Prix was won by MADAME VEUVE MARTIN, for Chrysanthemums.

Coinciding with the Exhibition, a National Fruit Congress for France and her colonies was held at the offices of the Society in the Rue de Grenelle. A number of papers were read and discussed, but the main subject was the commercial utilisation of fruits, and their manufacture into jam. There were various activities connected with the Congress, among others a costume dance, in which the guests represented various attributes of flowers and fruits. *A. M.*

BRIGHTON AND HOVE HORTICULTURAL.

THE Autumn Show of this Society, held in the Dome and Corn Exchange, Brighton, on November 12, 13 and 14, was a great success, and it is very apparent that if this show continues to increase in popularity, fresh accommodation will have to be found for it. All the competitive classes, and especially those for Chrysanthemums, were well filled, and there were numerous trade exhibits, which were not, however, up to last year's standard; the general management of the show was excellent, and a high standard of quality maintained throughout.

COMPETITIVE EXHIBITS.

The show is primarily for Chrysanthemums, and these, naturally, were the chief feature. There were several grand exhibits in the important open class for an oval group of Chrysanthemum plants, the best being that staged by W. H. VOKINS, Esq. (gr. Mr. W. J. Scott), Beechwood, Withdean, who had a grand mound of excellent Japanese sorts; second, Councillor E. E. LYONS (gr. Mr. D. Pidgley), Withdean, Brighton.

ANNIE VISCOUNTESS COWDRAY (gr. Mr. R. Middleton), Paddockhurst, Crawley, was a good first for twenty-four Japanese Chrysanthemums, not fewer than eighteen varieties, R. C. Pulling, Red Majestic, Yellow Majestic and Mr. G. Drabble being her outstanding sorts; the second prize was awarded to Sir W. CHAMPION (gr. Mr. R. W. Wheare), Danny Park, Hurstpierpoint, who also had a very good collection.

EARL BEATTY, Reigate Priory, Reigate, led for twelve Japanese blooms, distinct, his blooms of Louisa Pockett, Yellow Majestic and Queen Mary being the cream of the collection; second, S. SCULLY, Esq. (gr. Mr. T. Elder), Old Place, Lindfield; while for six Japanese Chrysanthemums, distinct, Dr. E. MALTBY, Brighton, was first, and EARL BEATTY, second. The first prize for three vases of Chrysanthemums, distinct, was won by S. SCULLY, Esq., who showed splendid blooms of W. Rigby, General Pétain and Mrs. G. Drabble, with ANNIE VISCOUNTESS COWDRAY a close second; while in the class for three Incurved Chrysanthemums, Mr. B. RUBENSTEIN, Timbers, Rustington, led with Advance, Calypso and Percy A. Dove; second, Mr. C. LUCKIN, Wadlands, East Grinstead. W. S. POOLE, Esq. (gr. Mr. J. G. Casewell), Oakwood, Haywards Heath, was first for six vases of Single Chrysanthemums, showing Red Molly, Susan, Miss J. Wisby, Mrs. J. Palmer, Bronze Molly and Molly Godfrey; with ANNIE COUNTESS COWDRAY second. W. S. POOLE, Esq., staged the first prize collection of twelve disbudded Single varieties, while in the very popular class for four vases of Decorative or Incurved blooms, Mr. C. S. JOHNSON, Worthing, was deservedly first; and ANNIE VISCOUNTESS COWDRAY, second.

There were four good exhibits in the class for six bush Chrysanthemums, those shown by Mrs. GIBBS (gr. Mr. E. Norris), Fairmile, Haywards Heath, being adjudged the best, for they were magnificently grown plants; Councillor E. E. LYONS was a good second.

In the section open only to amateurs and allotment holders, the most important floral class was for a circular group of Chrysanthemum plants, seven feet in diameter, and the exhibits in this class were quite a feature of the show. Mr. R. MOORE, 18, Sun Street, Lewes, was first, with a very effectively arranged group, and the second prize was awarded to Mr. N. D. BROOKE, Hove. Mr. C. LUCKIN was first for three vases of Single Chrysanthemums in this section, and he also secured the premier award for one vase of twelve distinct Single Chrysanthemums; Mr. G. RUNNELL, Brighton, was second in this class.

The decorative classes were, as usual, very popular, and several tastefully executed designs were noted. CECIL T. CHANDLERS, Esq. (gr. Mr. F. W. Chilvers), Sherrington Manor, Selmston, had the best table of Carnations, his blooms being of excellent quality and artistically arranged; second, S. SCULLY, Esq.

There were six entries in the open class for a decorated dinner table, and that arranged by Miss M. WOOLVEN, Wadlands, East Grinstead, consisting of scarlet Carnations, Madame Butterfly Roses and Lily-of-the-Valley, was awarded the first prize; while in the similar class in the ladies' section, Chrysanthemums only allowed, Miss J. EVERSHED, Betchworth, Surrey, was awarded the first prize for a charming arrangement of crimson and bronze Single sorts.

The classes for fruits were, in general, well filled and high quality was evidenced. Several excellent bunches of Grapes were staged in the two classes allocated to these, Mr. H. T. C. PEPPER, Salsington Letts Vineries, Worthing, being first for two bunches of black Grapes, showing Gros Colmar in excellent condition, and Lieut.-Col. P. R. PAPPILLON (gr. Mr. E. Carpenter), Crowhurst Park, Battle, first for two bunches of white Grapes, with grand bunches of Muscat of Alexandria.

Sir W. CHAMPION showed the best basket of twelve fruits of a culinary Apple, his variety being Newton Wonder; second, Mr. C. S. JOHNSON; and Sir W. CHAMPION also led for four dishes of dessert Apples, with Mr. A. O. COSHAM, Park Avenue, Upper Willingdon, a close second. Messrs. SHEPHERD AND HYSLOP (gr. Mr. T. A. Sandalls), Rottingdean School, Brighton, showed the best four dishes of culinary Apples, distinct; second, Mr. A. H. PARSONS, Lewes; while in the classes for two dishes of dessert, and two of culinary Apples, respectively, Mr. C. S. JOHNSON and the EARL OF CHICHESTER (gr. Mr. A. Mason), Stanmer Park, were successful.

Mr. A. O. COSHAM showed the leading two dishes of dessert Pears; Mr. A. H. PARSONS led for one dish of stewing Pears; W. J. YAPP, Esq., was first for two dishes of Apples and two of Pears, showing Cox's Orange Pippin and American Mother Apples, and Pitmaston Duchess and Doyenné du Comice Pears; and J. H. MARTIN, Esq., showed the best set of three dishes of Apples and three of Pears, his varieties being, Apples King of Tompkins County, Hollandbury and Bramley's Seedling; and Pears Beurré Alexander Lucas, Pitmaston Duchess and Doyenné du Comice.

There were numerous classes for vegetables, those in which special prizes were offered by seedsmen being especially popular. The Onions and Potatos were of very good quality, and there were several notable exhibits in the classes for collections of vegetables. In the special class for a collection of nine distinct vegetables, open to amateurs and allotment holders in the county of Sussex, Mr. R. MOORE, Lewes, was a good first.

The affiliated allotment societies' competition was a feature of the vegetable section. A collection of twelve varieties of vegetables was required and four exhibits were staged, the first prize being secured by the HOVE HORTICULTURAL AND ALLOTMENT HOLDERS' ASSOCIATION, and the second prize by the ALLEN WEST GARDENERS' AND ALLOTMENT HOLDERS' ASSOCIATION, both showing produce of good quality.

NON-COMPETITIVE EXHIBITS.

These were not so numerous as usual, but they assisted in making the show a success.

Very attractive exhibits of Chrysanthemums were staged by Mr. A. G. VINTEN, who showed many Decorative and Single sorts in splendid condition, and brightly coloured; and by Messrs. Keith Luxford and Co., Ltd., who made a special feature of Japanese sorts.

Collections of Apples were arranged by the Barnham Nurseries, Ltd., and Messrs. J. Cheal and Sons, Ltd. Mr. W. G. Bright had a miscellaneous collection of flowering and foliage subjects; Mr. F. Woollard had fruiting and flowering subjects, together with several dishes of excellent Apples; and Mr. Arthur Pratt showed Ferns and Chrysanthemums.

Cyclamens in pots, with various Ferns, were shown by Messrs. W. Miles and Co., Ltd.; Mr. C. J. Tugwell had a miniature garden; and Mr. H. Anscombe had an attractive group of Cyclamens, Begonias of the Gloire de Lorraine type, and Chrysanthemums.

Messrs. Allwood Bros. set up a small group of perpetual-flowring Carnations, and Mr. H. Hemsley had an interesting collection of shrubs and Conifers, and a miniature rock garden; he also showed baskets of excellent Apples.

Messrs. W. Balchin and Sons, Ltd., had a spectacular florist's display, and the decoration of the orchestra dais was tastefully filled by the Brighton Corporation (Supt. Mr. McLaren), Chrysanthemums in variety being used for this purpose.

There was only one trade exhibit of vegetables and this was a very excellent one by the Premier Seed Co., Ltd., who showed a wide variety of excellently-grown produce.

PROFESSIONAL GARDENERS'.

This Society held a meeting in the new Horticultural Hall Lecture Room on November 7. Mr. MacCormack, President, took the chair, and set forth the objects of the Society, and urged the necessity of unity among gardeners. Mr. G. Reid, General Secretary, Pollard Hall, Gomersal, and Mr. Jones, Harrogate, supported the President, who then invited questions, and after a good discussion, a proposition was carried that a branch of the Association be formed in London. Mr. A. M. Hope, Enfield, Middlesex, undertook to act as Secretary, *pro. tem.*, and will arrange for another meeting in the near future.

READING GARDENERS'.

There was an excellent attendance of members of this Association at the fortnightly meeting, held in the Abbey Hall, on the evening of November 4, and presided over by the Chairman, Mr. W. Broomfield.

The feature of the meeting was the floral competitions, the arrangements of the flowers having to be made in the room before the members. Twenty minutes were allowed for each bowl to be made up. The judges made their awards as follows:—

For a bowl of Chrysanthemums arranged for effect, own foliage, eight entries, first, Mr. A. W. Gower, Calcot Grange Gardens; second, Mr. A. Manley, Highfield Park Gardens, Heckfield; and third, Mr. C. J. Howlett, The Yews, Earley.

For a bowl of flowers and foliage, berries allowed, arranged for effect, there were seven entries. Mr. J. Wynn, Hammond's Gardens, Checkendon, was first; Mr. E. Blackwell, Foxhill Gardens, Reading, second; and Mr. F. Haines, Calcot Hanger Gardens, third.

In the non-competitive section, Mr. E. Blackwell received a First Class Certificate for a batch of very fine Solanum capsicastrum, the plants carrying healthy foliage and large, well-coloured berries. Mr. C. J. Howlett gained an Award of Merit for three profusely-flowered plants of Chrysanthemums. Mr. C. Moulton, Rookwood Gardens, Shinfield Road, Reading, exhibited a dozen fine Quince fruits; and Mr. F. Turner, Southview, Calcot, showed two vases of white Chrysanthemums.

The lecture arranged for the evening was "Hydrangeas," by Mr. H. Reeves, Broadfield Gardens, Reading, but this had to be postponed until the spring owing to the lateness of the hour at which the competitions finished.

Obituary.

J. A. Best.—East Anglia in particular, and horticulture in general, have suffered a great loss by the death of Mr. J. A. Best, who was employed for over forty years at Easton, near Framlingham, where he served as head gardener for a considerable portion of that period. He was a very successful cultivator and organiser, ever ready to help both amateur and professional gardeners. Courteous and kindly, he possessed a charming personality that attracted many friends and earned for him the deepest respect of his employers and particularly of Lady Mary Hamilton, who spent her girlhood at Easton before she became Duchess of Montrose. One of the old Victorian school of gardeners, Mr. Best excelled as a grower of Grapes and Peaches, hardy fruits, vegetables and Chrysanthemums. The remains were laid to rest at Easton Church amid many tokens of friendship and respect, wreaths being sent by (among others) the Dowager Duchess of Hamilton, the Duke and Duchess of Montrose, and Mr. R. C. Notcutt.

Archibald Chisholm.—We deeply regret to learn that Mr. A. Chisholm, the horticulturist in charge of the Government Provincial Council Gardens in Bloemfontein, South Africa, died suddenly in that city, early on Sunday, October 6, at the age of fifty-nine. He had been in the best of health and spirits on the previous evening, left the bowling greens at 6 p.m., after dinner listened-in to wireless music, and went to bed apparently quite well. He was found dead in bed the following morning. He had expired at about 6 a.m. from heart failure. His sudden death came as a great shock to his wife and son, and to those of his friends who had seen him on the previous day. Mr. Chisholm was born at Berwick, and he served his apprenticeship as horticulturist in his native town. Having passed his examinations in Glasgow, he received an appointment in Nottinghamshire, and was subsequently placed in charge of the gardens on the estate of the Duke of Buccleuch, in Midlothian. The deceased gentleman went out to South Africa under the Scottish Settlers' Scheme subsequent to the Boer War. In 1904 he was appointed to the Government position in Bloemfontein, which he held until his death. Mrs. Chisholm hails from Loch Syne, in the west of Scotland; their son, Noel, has served his apprenticeship in the electricity department of the Bloemfontein Municipality. The funeral took place on the day after death, the service being conducted according to the rites of the Presbyterian Church.

John Harrison.—A typical Victorian business man, tall and courtly, wise far beyond the average, and possessing an unusually wide knowledge of vegetable and agricultural seeds, "John Harrison, of Leicester" has passed away at the great age of eighty-five years. He was a fine man, and we were proud to have enjoyed his friendship for more than a quarter-of-a-century. One of the best known men in the seed trade, Mr. John Harrison, F.L.S., never stooped to anything doubtful in business, and thus he won the deepest regard and highest respect of all engaged in the seed industry. He was President of the Horticultural Trades' Association in 1909, and held many important positions in midland agricultural circles, and until advancing years brought with them the increasing disability of deafness he was a very regular attendant at the meetings of the Royal Horticultural Society, of whose Fruit and Vegetable Committee he was a member for a very long period. Although head of Messrs. J. Harrison and Sons, seedsmen, Leicester, he had of late left the chief conduct of the business in the capable hands of his son, Mr. J. Harrison, junr., under whose care it will continue. A portrait and appreciation of Mr. John Harrison, senior, appeared in *The Gardeners' Chronicle* of March 26, 1921.

Thomas Lloyd.—We learn with regret of the death of Mr. Thomas Lloyd, who passed away in the Manchester Royal Infirmary on November 2, at the age of sixty-eight. For the past two-and-a-half years, Mr. Lloyd had charge of the gardens at The Hermitage, Holme Chapel, Cheshire, the residence of F. Cornall, Esq., and previous to that he was for thirteen years gardener at Belmont Hall, Northwick. Mr. Lloyd also spent six years in the service of the late Sir O. Wakeman, at Yeaton Peverey, Shrewsbury. He leaves a widow, two sons and a daughter to mourn his loss. The elder son is Park Superintendent to the Todmorden Corporation.

John Edward Mason.—His numerous friends in the horticultural world will learn with regret of the death of Mr. John Edward Mason, a director of Messrs. Joseph Bentley, Ltd., the well-known firm of chemical manufacturers, which took place on the 1st instant, at his residence, Barrow House, Barrow-on-Humber, Lincolnshire.

Louis-Joseph Philippot.—We regret to learn of the death of M. Louis-Joseph Philippot, the President of the Administrative Council of the Co-operative Society owning the famous Brussels market known as the Halles des Producteurs. He was a man held in the greatest respect, and had been awarded several orders, including that of Chevalier de l'Ordre de Léopold II, and the Special First Class Medal of Agriculture. He died at La Hulpe on October 29, and his funeral, on the following Saturday, was attended by a large concourse of friends.

ANSWERS TO CORRESPONDENTS.

Hard Tennis Court.—*H. J. J.* We would advise you to commence operations on your proposed tennis court immediately, particularly so if you have decided to make use of the turf from the tennis site by relaying it on some other site. It is also advantageous to prepare the foundations, *i.e.*, excavating, draining (if necessary), bottoming, and consolidate with a heavy roller, at the earliest opportunity, even although the court will not be required for play until April next. By the month of March any weakness in the foundation will have shown itself, which can easily be made up again to the required level, and the court will then be ready to receive the final layer. In preparing the foundation now, provided, of course, the finishing material is properly laid, you will have a court with a perfect playing surface for all time.

Shrubs for Planting near Large Cedar.—*X. Y. Z.* In your enquiry, you omitted to state what space you had to fill, and this information would have proved a help in making a selection. At the back you could plant Pyrus floribunda var. atrosanguinea and Pyrus purpurea, which make, in time, small trees up to twelve or fifteen feet high. If they are too tall for the position, you could try Spiraea ariaefolia (discolor); Buddleia variabilis var. Veitchiana, Philadelphus grandiflora, Lilacs, such as Madame Lemoine, double, white; Marie Legraye, single, white; Souvenir de Louis Späth, single, violet-red; Philemon, single, red; and Charles Joley, double, dark red; also Viburnum Opulus var. flore pleno. For the middle area you could select from the following, viz.:—Viburnum plicatum, Forsythia intermedia var. spectabilis, Buddleia globosa, Magnolia Soulangeana, Philadelphus Virginal, Ribes atrosanguinea, Berberis stenophylla and Rhus Cotinus; while plants suitable for the front lines may be selected from the following:—Magnolia stellata, Berberis Wilsonae, Berberis Thunbergii, Berberis aquifolium, Daphne Mezereum, Hypericum patulum, Hypericum calycinum, Olearia Haastii, Philadelphus Bouquet Blanc, P. Mont Blanc and P. Mére de Glace, Ceanothus Gloire de Versailles, also Lavender and Rosemary; Spiraea Anthony Waterer, S. Thunbergii and Viburnum Carlesii. Regarding the dry border under the Cedar, you ask what class of plant would grow in it. If it is shaded by the Cedar, you must employ plants that will withstand shade, such as Ivy, Berberis aquifolium, Ruscus aculeatus, Hypericum calycinum, Euonymus radicans, and Vinca major and V. minor.

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SUPPLEMENT PLATE.

Iris ensata.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the past fifty years at Greenwich, 42·1°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, November 20, 10 a.m. (Greenwich time). Bar. 29·8. Temp. 52°. Weather, Fine.

Intensive Manuring.

Most good gardeners—at all events, those who produce for market—believe in and practise a liberal and judicious use of manure and fertilisers. Nowhere, for example, is better cultivation to be seen than in the Potato-growing districts of England and Scotland, and nowhere, in these islands at least, is there to be found a more liberal and scientific use of fertilisers. Yet in private gardens, although farmyard manure is used not ungrudgingly—where it is to be had—the application of fertilisers is apt often to be sporadic and niggardly. This is true not so much of the larger gardens as of the smaller ones. Therefore, it may be both interesting and instructive to summarise briefly the results of experiments now being carried out by the National Institute of Agricultural Botany in intensive manuring as against ordinary manuring. Needless to state, the experiment which was made on Wheat bears a special interest to farmers, but it also conveys valuable lessons to gardeners. The cost of applying the ordinary dressings of superphosphate, kainit and nitrate of lime amounted to 18s. 6d. per acre in the year 1926-27; the cost of the dressings on the intensively manured areas was 79s. 9d. per acre. In the second year the corresponding figures were 24s. 11d. and 68s. 9d. Evidently, therefore, fertilisers were used liberally in the intensively manured plots. Yet they paid not unhandsomely. In the case of one variety, Yeoman II, the increased yield of grain produced by the intensive treatment was 6·8 cwts. in 1926-27, and 9·2 cwts. in 1927-28, the former year yielding a profit of 12s. per acre, and the latter one of £2 1s. 3d. per acre. In the case of the other variety, Squarehead's Master, used in the experiment, the profit from intensive manuring was less—the average for the two years being 12s. 8d. per acre as against the Yeoman II average of £1 6s. 7d. Naturally enough, the yield of straw was also increased by the intensive manuring, and the value of the increment is set off against the extra cost of applying the fertilisers. Mr. Hawkes, to whose account[*] of the experiments we are indebted, is careful to point out that this is not the whole of the story. The two varieties behaved very differently to intensive manuring. For Squarehead's Master lodged badly in the heavily-manured areas, while Yeoman II stood well. Even more interesting is the observation that whereas intensive manuring did not improve the quality of the grain of Squarehead's Master, it undoubtedly did improve that of Yeoman II. In this part is the moral which we wish to inculcate. Quality matters much—often more even than quantity—to the gardener. To grow varieties the crops of which may be improved quantitatively and qualitatively by intensive manuring must be a profitable procedure. Consider, for example, the Potato. How wide is the difference between a really good Potato—a delicious vegetable—and the ordinary Potato—a rubbishy affair not worth eating. If the shy-bearing, good-flavoured varieties can be made more productive by intensive manuring the sooner it is done the better, for it would increase the pleasures of the table to those who grow their own food, and it would undoubtedly increase consumption of Potatos on the part of the general public. There is a wide and useful field for research here, and we hope that it may soon be intensively cultivated.

Our Supplement Plate.—The distinct and beautiful Iris ensata, the subject of the Supplement Plate we have pleasure in presenting with this issue, is a member of the Apogon section of the genus Iris, and is a widely distributed species, being found in Central Asia, Kashmir, China and Korea. It is a deep-rooting plant, forming a compact, rhizomatous rootstock, and is thus better able to withstand long periods of drought than many Irises, its foliage remaining fresh until cut down by frosts. It has narrow, linear leaves, varying in length from a few inches at flowering time to eighteen inches to two feet when fully developed. Its flower stems vary from two inches to about twelve inches high and bear single, terminal flowers which vary in colour from pure white, lightly veined with green, to dark blue- or reddish-purple, with the standards usually darker and the back of the haft greenish. There are many geographical forms of Iris ensata, some of which have been classified as distinct varieties. I. ensata is an easily grown and desirable species, although in gardens it usually does not commence to flower really well until well-established, usually about three years from planting.

New Orchid Species.—An enumeration of the Orchids collected by Mr. J. F. Rock on the Arnold Arboretum expedition to north-western China and north-eastern Tibet, is given by Mr. Charles Schweinfurth in a recent issue of the *Journal of the Arnold Arboretum* (Vol. X, 1929). Two new species are described by Mr. Schweinfurth, and these are Amesia longibracteata and Oreorchis Rockii. The former is a tall-growing plant, attaining a height of about 60 c.m. to the top of the inflorescence; in general appearance it recalls the widespreading and variable A. latifolia, but it has larger flowers, with more acuminate segments, than this species. Oreorchis Rockii is a small plant for the genus and it is found in alpine meadows at an altitude of 3,000 m. in central Kansu. Two new species of Orchids are also described by Dr. F. Kränzlin in the issue of Dr. Fedde's *Repertorium specierum novarum* for September 20 (Vol. XXVI). These are Catasetum stenochilum and Oncidium reductum. Catasetum stenochilum is related to C. Garnettianum and C. fimbriatum, while Oncidium reductum belongs to the Crucifera section of the genus and is a native of Brazil. The same publication also contains a technical description by Dr. J. J. Smith, of Bulbophyllum basisetum, a new species from the Phillipines.

Agricultural Machinery and Market Gardening.—The scientific application of agricultural machinery to market gardening in this country is foreshadowed in the announcement that at the World Tractor Trials, to be held near Oxford next year, special attention will be devoted to testing the efficiency of small mechanical equipment, such as tractor-cultivators, suitable for use by market gardeners. It is also announced that the Royal Agricultural Society of England, which is responsible for the Trials, has decided to modify the governing conditions so as to make the maximum entry fee £150 for all classes of tractors and machines. This limitation of the entry fees will add considerably to the financial liability of the Society, but the step is held to be justified by the encouragement offered to manufacturers of high-power equipment. On particular high-power cable sets and motor ploughs there will be a saving of £250 or more in entry fees, as compared with the amount chargeable under the original scale. The preliminary announcement of the Trials has attracted widespread attention both in England and abroad, and, for the first time in the development of agricultural machinery, it is anticipated that British firms will be in a position to meet the challenge of their American and Continental rivals.

Antwerp International Horticultural Exhibition.—Preparations are proceeding apace for the World's Fair to be held at Antwerp during the year 1930, in commemoration of the centenary of Belgian Independence, including the international horticultural exhibitions, which will be an important part of the show. A strong Committee has been appointed to arrange the horticultural classes, including MM. Van Orshoven (Directeur de l'Office Horticole), Emile Draps, Speckaert, Lt.-Gen. Cabra, F. Peeters, and Boddewijn, in the organisation of which the main responsibility falls on the Antwerp Royal Horticultural Society as the local society. A meeting of Group VI (Horticulture) took place at Brussels on November 6, under the presidency of M. Emile Draps, to make preliminary arrangements and appoint subject-groups to deal with the various sections, and the architect of the group, M. Van Marck, submitted plans of the proposed arrangements.

John Innes Institution Conference on Polyploidy.—A report in booklet form has recently been issued on the Conference on Polyploidy held at the John Innes Horticultural Institution, on January 19, 1929, to commemorate the centenary of the birth of the founder, John Innes. It contains the various papers which were read at this Conference, but no reference is made to the discussions which followed the reading of some of them.

Brighton's New Rose Garden.—Those who have known Brighton for any length of time are able fully to appreciate the enormous improvements that have been brought about in its parks and gardens during the last few years. The present Superintendent's project was a brilliant one when he opened out the valley gardens through the centre of the town by removing heavy railings, destroying literally thousands of Euonymus bushes, replacing them with spacious lawns and flower gardens. Then followed the laying-out of three new parks and the making of sunken gardens on the sea-front. The latter represent the finest work of its kind in the country. Brighton now possesses well over one thousand acres of parks and gardens, tastefully laid out and well maintained. But the latest effort has proved to be by far the finest improvement of all. Preston Park, which abuts on to the main London road, has been opened out and the south end laid out as a Rose garden, at a cost of over £13,000. The entrance to the town is thus vastly improved. Previously, visitors driving in by road would catch but a glimpse of the Park, which was bounded by severe and forbidding iron fencing and Euonymus hedges. One now gains the impression of entering the town by actually driving through a spacious and beautifully timbered park. The Rose garden is a masterpiece of design and execution, and has been praised by visitors from all parts of the world. In place of a none too attractive lodge, heavy iron gates, and dense shrubberies, a garden of unusual design has been laid out. The entrance is now emphasised by means of a broad sweep of roadway, the boundary being effected by means of imposing balustrading. The outline of the garden is determined by two roadways which diverge from points on either side of the entrance. The visitor enters from the south end onto a view which, therefore, broadens, and the design is so executed that the further boundary is undetermined, banks of flowers being visible so far as the eye can travel. The view through the centre of the garden passes over beds set out in lawns and sloping banks of faultless Cumberland turf. On the right background a pavilion of unusual design has been erected. The vista through the centre of the garden leads through trees to the distant Clock Tower, while on the left, one catches a glimpse of the bowling green, and again, in the far distance, the tennis courts. At the far end of the garden the paths turn inwards, leading through further Rose beds and terminating in a large circular pool. The design of the pool is commendable, and it provides a salient feature at the foot of the pavilion. The whole of this summer the garden has been a blaze of brilliant colouring provided by numerous bedding plants, for it was completed too late for the planting of Roses this year, but it is understood that over six thousand trees will be planted immediately. The whole of the work of design and execution has been carried out by Captain Maclaren, the able Superintendent of the Brighton Parks.

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[*] "The Effects of Intensive Manuring on Two Varieties of Wheat," by F. C. Hawkes, M.A. *The Journal of the National Institute of Agricultural Botany*, Vol. II, No. 2, 1929, published by Messrs. W. Heffer and Sons, Ltd., Cambridge.

British Mycological Society.—A meeting of this Society will be held in University College, Gower Street, W.C.1, on Saturday, November 23, at 11 a.m. Professor R. R. Gates and Mr. D. V. Daran will deal with "Zygospore Formation in Mucors"; Miss J. Grove will discuss "Growth Reactions of Helotium scutula, Karst"; Dr. R. G. Tomkins will give an address on "The Relation of Mould Growth to Humidity"; Dr. H. Wormald will detail "Some recent observations on Brown Rot Diseases of Fruit Trees"; and Mr. E. C. Barton Wright will discuss "Sexual Reproduction in Penicillium." The names of the authors are arranged alphabetically. The papers will be given in the order most generally convenient. At this meeting the election of the President for 1930 will take place.

Utrecht Chrysanthemum Show.—The Annual Exhibition of Chrysanthemums and other autumn flowers was held this year from October 30 to November 3, in the market building at Utrecht. It had at first been intended to hold it at The Hague, but after the preliminary arrangements had been made, the organisers of the Rose Show, "Nos Jugunt Rosae," decided to have their exhibition in that town, and it was felt that a second exhibition so soon afterwards might not have been successful. The market building, although not in all ways well adapted for the purpose of an exhibition, proved quite suitable, and in the daytime the lighting was good; its over-large size and rather bare effect was greatly reduced by a generous and judicious use of ornamental plants. The show was opened in the afternoon of the first day by the Burgomaster of Utrecht, Dr. J. P. Fockema Andrae, who was received by the President of the Chrysanthemum Club. The number and quality of the exhibits was excellent, and the many prizes and awards were keenly contested. The Queen's Silver Medal was awarded to the firm of Messrs. Wed. P. Eveleens en Zonen, of Aalsmeer, for a really lovely group, and that of the Queen Mother to one almost equally fine sent by Messrs. W. Serton, of Vleuten. Messrs. Eveleens also won a Gold Medal, with a special cultural commendation from the jury, and Messrs. W. Serton obtained a similar honour, a Gold Medal being also awarded for a group of Codiaeums. Dracaenas and "Christmas Pepper," to Mr. C. Smitskamp, of Zeist.

Mr. J. S. Coates.—Mr. Coates commenced his horticultural career in 1905 at Wroxton Abbey Gardens, under Mr. D. Power, and after spending four years there he removed to Elvaston Castle Gardens, to serve under the famous fruit grower, the late Mr. J. H. Goodacre, V.M.H. There he remained for two-and-a-half years, during which time he was able to visit most of the important horticultural shows in the country. From Elvaston, Mr. Coates went to Moulton Paddocks Gardens, which were under the control of Mr. B. Goodacre. After serving under Mr. B. Goodacre for a period of two years, he obtained the post of foreman at Wynyard Park Gardens, under Mr. H. E. Gribble. Here he spent eighteen months, when the outbreak of the great war checked his gardening activities, and he joined the Rifle Brigade. He was drafted to France early in February, 1915, and after serving twelve months, mostly in the Ypres salient, was wounded at Hooge, and sent back to England. He was discharged from the service in August, 1916. In March, 1918, Mr. Coates was appointed to the charge of the gardens at Dalton Hall, Beverley, Yorkshire, which appointment he still holds. He is an active member of the North of England Horticultural Society, and has acted in the capacity of judge at the Society's shows at Harrogate. As an exhibitor of only two years' standing he has been fairly successful, winning the premier awards for Grapes and Pears at the last two shows of the Hull Chrysanthemum Society, and also the Silver Challenge Bowl for Japanese Chrysanthemums at the Beverley Society's show last year. The winning of the George Monro Memorial Cup for a collection of Grapes at the recent Royal Horticultural Society's Fruit Show was a notable achievement by Mr. J. S. Coates.

MR. J. S. COATES.

History and Development of the Chrysanthemum: Demonstration at Kew.—An exhibit is now to be seen at the Royal Botanic Gardens, Kew (House 14c), which attempts to illustrate the history and development of the Chrysanthemum. It is somewhat difficult, at the present day, to be certain of the exact origin of the garden races of a genus which has been the subject of cultivation for so long a time. In all probability the garden Chrysanthemums are descended from the two wild species now known as C. indicum, Linn., and C. morifolium, Ramatuelle. Flowering plants of these species are exhibited and also a specimen of C. ornatum, Hemsl., another eastern species, which, although it is one of the parents of one of the varieties in the exhibit, is not considered as having had much influence on the garden races now in cultivation. The earliest record of the Chrysanthemum being cultivated in Europe is in the year 1688, when it was being grown in Holland. It was also grown in the Garden of the Apothecaries Company at Chelsea in 1764. Examples of most of the present day races of Chrysanthemum are shown in the exhibit, which includes the Japanese (exhibition and decorative), Incurved, Pompon, Anemone-flowered, Singles and varieties with quilled and hairy petals, as well as some of early-flowering varieties suitable for outdoor cultivation.

The Royal Gardeners' Orphan Fund.—This deserving charity has received an anonymous donation of twenty-five pounds.

Cologne Exhibition.—From October 13 to 20 there was held at Cologne an exhibition of food-stuffs, of which the horticultural section was particularly interesting, comprising exhibits from several foreign countries, including France, Holland and Belgium. France exhibited Grapes from the open in the southern Departments; Holland had a huge exhibit of all kinds of produce, especially Grapes and Tomatos, and from Belgium came an excellent exhibit comprising many different kinds of products of the country. Belgian Grapes of all kinds were particularly to the fore, but perhaps the most important part of the exhibit consisted of the well-known Witloof Chicory, of which an enormous and ever-growing quantity is grown and exported.

Heavy Potato Cropping in Scotland.—The following are the results of the Potato-cropping competition promoted by Scottish Agricultural Industries, Ltd. (of which Messrs. Alex. Cross and Sons is the branch concerned):—First prize, Mr. John Hamilton, Mains, East Kilbride; yield, 23 tons 0 cwt. 0 qr. 11 lbs. per acre. Second prize, Messrs. Bryd Brothers, Lettrick Hills, Cambuslang; yield 22 tons 3 cwts. 2 qrs. per acre. Third prize, Messrs. R. and J. Logan, Kirkland, West Kilbride; yield 20 tons 10 cwts. 2 qrs. 24 lbs. per acre. The highest yield of other competitive counties, which include Dumbartonshire, Renfrewshire and Stirlingshire was 18 tons 10 cwts.

Scottish Horticultural Conditions.—The report of the Scottish Ministry of Agriculture for the quarter ended October 31, states that the exceptionally mild weather which prevailed well into that month enabled full crops to be gathered and blooms of tender plants were obtainable until an unusually late date. Reports from all districts regarding vegetables are satisfactory. As regards flowers, good results, particularly with Chrysanthemums, are reported from all districts. In the western area, however, some damage to the plants was done by leaf-miner. Abundant crops have been obtained in the Lothians, while in Midlothian, Dahlias, Marigolds, Tropaeolums and other plants, flourished and bloomed to the end of October. Prices obtained for flowers cultivated out-of-doors in the western area have been low. Satisfactory glasshouse crops were obtained in the northern and north-eastern area, but in the former prices were exceptionally low. Crops were below normal in the western area, where Tomatos suffered from a set back, but improved later. Red Spider, White Fly, Wilt Disease and Wireworms caused losses in the western area. Exceptionally good crops of small fruits were produced in all districts, Black Currants being particularly abundant in the western area. In the south-eastern area

Apples and Pears were harvested in good condition, but there were many windfalls as a result of gales in the early part of October. In the western area Winter Moth occurred on most trees, while Apple and Pear Scab was also rather severe.

Natural History of Basutoland.—An interesting part of the proceedings at a recent meeting of the Linnean Society was a lecture given by Dr. Hugh Scott, illustrated with lantern slides, of a natural history excursion into Basutoland. This excursion, made in February, 1929, during a holiday in South Africa, occupied only about eleven days. It was undertaken to see the general conditions in a little-visited part of South Africa, to collect so many insects as possible, and to compare this very mountainous country with other mountain regions where the lecturer's field work has lain. Basutoland is nearly 150 miles across in either direction. There are no railways except a mile or two linking up Maseru, the capital, on the north-west frontier, with the South African system. The few roads are all in the less rugged west borders, the rest of the country being penetrated only by bridle-paths. Until little over a century ago, Basutoland was inhabited almost solely by bushmen. The foundation of the present Bantu nation, the Basuto, by Moshesh in 1831, and their vigour and progressiveness, have profoundly affected the natural history. Deforestation and destruction of big game have been extensive. Almost the only native "timber" seen was scrub composed of a Rosaceous bush, Leucosidea sericea, about five to fifteen feet high. All arable land is devoted to cultivation of Mealies (Maize) and Kafir Corn (Sorghum), and the grassy slopes are stocked with horses and cattle. Entomological collecting resolves itself largely into "sweeping" grass and flowers, searching under stones and working the low, dense bush of kloofs. The country would doubtless repay prolonged investigation, which might reveal how far the insects of the mountains differ from those of the high veld surrounding Basutoland, and of the Cape Province mountains a long way south-west. Basutoland is a native reserve, but with the help of the local Commissioner at Maseru and other friends, an excursion was made thirty miles east from Maseru to Nyakoesuba, whence the Maluti Mountains were visited. Afterwards the extreme north-east corner was touched; a three-days' journey by horse was made from Witzieshoek, O.F.S., to the Drakensberg National Park in Natal, Basutoland being re-entered on the summit of Mont-aux-Sources, the highest mountain in South Africa, over 11,000 feet. On top is a flat moorland ending in a precipice more than 2,000 feet high, over which the Tugela River falls. Heavy rainstorms and high wind interfered with collecting on the summit, but the broken weather was compensated for by the profusion of flowers in blossom during the summer rains.

New Parks Superintendent for Durban.—From over thirty applications for the position of Parks Superintendent to the Durban Municipality, South Africa, Mr. P. Robertshaw, of Wynberg, Capetown, has been appointed by the Durban Town Council. Thirty-two years of age, Mr. Robertshaw holds high qualifications as a horticulturist. He commenced his career as a Horticultural Instructor in the English midlands, and was afterwards employed by the Parks Department of the Manchester Corporation. Later on, he took the student gardener's course at Kew, and subsequently assisted Sir Edwin Lutyens to organise a State Garden department in India. On Mr. Robertshaw's return to England he was offered the Curatorship of the Cambridge Herbarium: this position he declined, but accepted an appointment with a private employer in the Cape Province, which he took up a year ago. Mr. Robertshaw will undertake a complete reorganisation of the Durban Parks and Gardens Department, which in the past has suffered from a division of control.

A German View of Wisley Gardens.—In the November issue of the *Gartenschönheit* is an interesting article on the subject of the Royal Horticultural Society's Gardens at Wisley, with some excellent illustrations, by Karl Wagner, a sympathetic and appreciative visitor to this country. He states that, in commercial cultivation, Germany can in many respects give points to England, but in the sort of half-wild, half-cultivated garden which is this country's speciality, the English excel, and nowhere is this style of gardening—among others—to be better studied by foreign students than at Wisley. Herr Wagner took a keen interest in the trial grounds, and especially admired the condition of the Delphiniums, which was far better at the time of his visit than might have been expected after the frosts and cold winds experienced during the month of June in the present year.

Appointments for the Ensuing Week.—Monday, November 25: Birmingham and Midland Counties Gardeners' Associations' lecture. Tuesday, November 26: Royal West Renfrewshire Horticultural Society's meeting. Wednesday, November 27: Newcastle and District Horticultural Society's meeting. Saturday, November 30: Leeds Paxton Society's Show of Single Chrysanthemums.

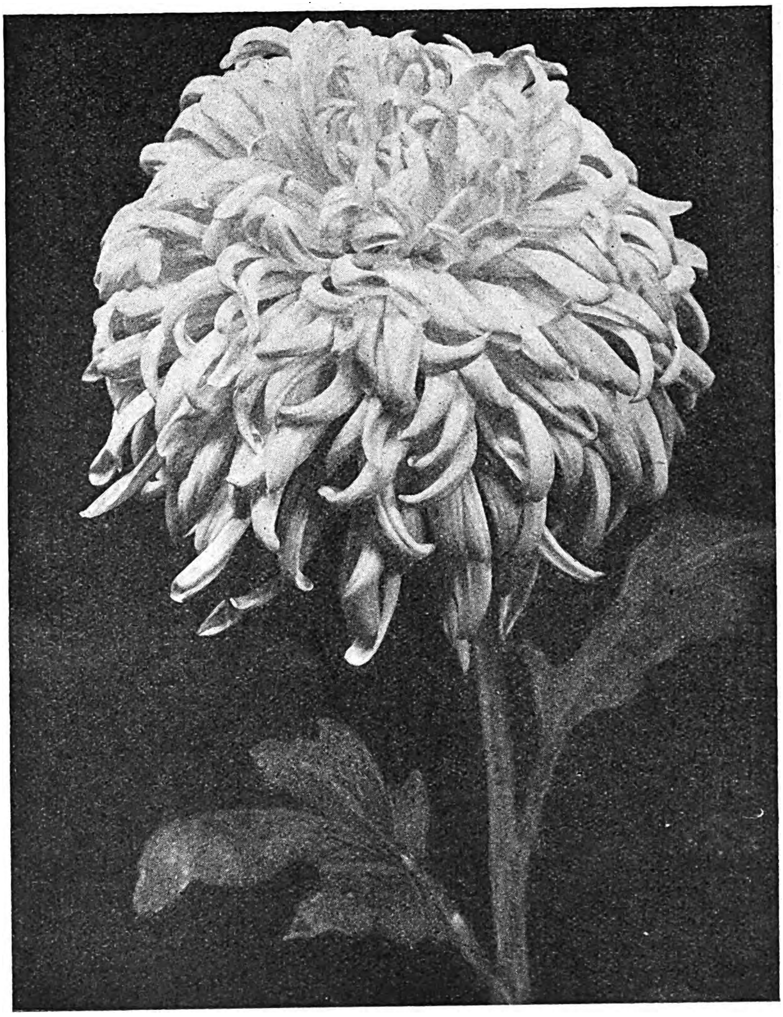

FIG. 181.—CHRYSANTHEMUM FLORENCE BIGLAND.

N.C.S. First Class Certificate, November 7. Flowers yellow. Shown by Mr. H. Shoesmith, junr.

(see p. 392.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Mr. Salter's Versailles Nursery, Hammersmith.*—Those who are interested about new Chrysanthemums cannot do better than pay a visit to this nursery at the present time, while Mr. Salter's fine collection is in bloom. It contains all the novelties of importance both of last year and this, and will be found well worth inspection. The following are a few of the best of such as were in blossom on Monday last. Large-flowered kinds: August Mie, reddish salmon; L'Ingot d'Or, yellow; Albin, dark claret; Trilby, blush; Chevalier Dumage, golden yellow, large and showy; Cassy, red and orange; Triomphe du Nord, reddish chestnut; Bossuet, rose shaded with violet; Rolla, rosy purple, tipped and mottled with silvery markings; Conspicuum, shaded rose; Madame Lebois, delicate peach; Phare de Messine, dark chestnut; Hermine, blush tipped with rose, and one of the most beautiful of this year's flowers; Le Prophete, yellowish buff; Prince Jerome, yellow and brown; Duc de Rohan, light crimson; and Eclipse, straw-coloured. Pompones: Riquiqui, deep plum colour; Pluie d'Or, dwarf yellow; Hélene, purple; Doctor Duval, reddish chestnut; La Vogue, yellow with a brown centre; Madame Rousselon, delicate peach; Hector, dark orange buff; Comte Vigier, pale buff; Mdlle. Elkington, fine white; Rose Pompone, quilled, pale lilac Reine des Anemones, fine white; Consuolo, yellow; Berrol, sulphur, suffused with rose; John Salter, dark reddish orange; Brilliant, reddish scarlet; Bayardiere, buff, suffused with silvery markings; Rosita, blush lilac; Precoce, deep rose; and Mon. Bijou, pale fawn, shaded with lilac; Hybrids, *i.e.*, crosses between the Pompones and large-flowered kinds: Marabout, fringed white; Cedo Nulli, white with brown centre, a pretty kind; Marceau, lilac-tipped white; Bernard de Rennes, dark fawn; Golden Drop, yellow Anemone-flowered sort; La Radieuse, rose, with white centre; Madame Passy, rose, shaded with lilac; Aurore Boreale, yellowish-buff; Berthile, lilac, bordered white. These in general have larger flowers than the Pompones. *Gard. Chron., November* 25, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Cymbidiums.—Various members of this popular genus are now producing flower scapes, and such plants should be well supplied with water each time the compost approaches dryness, to assist the development of the flowers. As the flower spikes on some varieties are a considerable time—often three months—in developing, and the expanded flowers may remain in perfection for a long period, the strain on the plants is naturally very severe, therefore only well-rooted healthy specimens should be allowed to flower. It is best to remove the spikes from the weaker plants at an early stage. Lucious, soft-grown plants of Cymbidiums seldom produce flowers successfully, and the withholding of water at the roots to induce them to flower is of no use, or advisable. The roots often perish under this drastic treatment, consequently the plants deteriorate considerably. Although, naturally, less water is required during winter, they should never be subjected to long periods of drought. The majority of Cymbidiums require plenty of light and air during the growing season in order to induce them the flower successfully, only sufficient shade being required to prevent the foliage from injury by the strong sunshine. Under these conditions plenty of atmospheric moisture is required to maintain healthy growth, while the syringe should be used frequently to keep insects pests in check. At this season, when the syringe cannot be used so often, scale insects increase rapidly under the drier conditions, and these should be sought for and removed so soon as detected, using a small brush for the pseudo-bulbs and a sponge for the leaves, with a solution of an approved insecticide. Care should be taken to avoid injuring the young flower scapes and the growing points during this operation.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Pruning Wall Fruit Trees.—Every possible advantage should be taken of all open weather to push on with the pruning and training of fruit trees, from now until January, as by that time severe weather may be expected, causing delay to such operations until close on spring when other work such as spraying, etc., will demand our whole attention. Wall-trained trees on which the lateral growths were shortened to five or six leaves during the summer, should need but little pruning now, but whether summer pruning was practised or not, the growths should be shortened to three or four buds according to strength, and long, unsightly spurs, which can be replaced by fresh fruiting wood, removed altogether. There should be a judicious thinning of crowded fruit spurs, particularly on Pear trees, which bloom so profusely, and are sometimes followed by a disappointing crop of fruits. By carefully reducing the number of spurs, and the fruit buds in those retained, the energy of the tree may be concentrated on producing better blossoms and, generally, a better set of fruits may be obtained. For removing or thinning crowded fruit spurs, I have found that a joiner's key-hole saw, in addition to the ordinary pruning saw, is invaluable. This saw has a thin, narrow blade about ten inches in length, which screws into a Pear-shaped handle, and for this class of work will be found most useful, as the thin blade can be manipulated with safety where the ordinary pruning saw would cause injury. Where space permits, the terminal shoots on espalier-trained trees may be laid in to their full length, except in the case of young trees, the shoots of which will need shortening to encourage the development of spur or lateral growths. In pruning these terminal shoots, care should be taken to cut to a bud on the under side of the shoot. The tendency of this bud is to produce a strong growth a such an angle that it may be quite easily trained into the proper position. This is not the case when cut to a top or foreright bud. All large wounds should be pared smooth and covered immediately with some protective material to prevent the entrance of silver-leaf spores, or other fungus diseases. Various protective agents are from time to time recommended, such as grafting wax, which should be thinned down by heating and applied with a brush, either Stockholm or gas tar, and paint. Whatever agent is employed, it should have a good skin and be waterproof, and harden off without scorching the bark tissues, or cracking and shrinking at the edges of the wounds when drying.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Stocks.—These are useful subjects for winter and spring-flowering. Plants raised from seeds sown as advised, of the All the Year Round type, should never be allowed to get starved in small receptacles before being potted into their flowering pots, and so soon as these are well filled with roots, the plants should be fed with liquid manure. Stocks are best grown under the coolest possible conditions, therefore frames from which frost may be excluded and in which the plants may obtain a maximum amount of light, are the best structures in which to cultivate these subjects.

Cyclamens.—Those raised from seeds sown last August should, if all has gone well, be ready for pricking off into pans or boxes, in which they may be kept growing throughout the winter. For these seedlings the compost should be on the light side, using, if possible, plenty of old mortar-rubble and good, flaky leaf-mould, with some silver sand added. During the winter, they should be kept so near the roof-glass as possible in a temperature of 55° to 60°. A little care is necessary when applying water to the roots and especially if the temperature is allowed to fall below the above figures. The most forward of the flowering stock should now be allowed to develop their flowers, which should be useful during the Christmas season. The plants should be fed gently twice a week with diluted liquid manure, or soot water, alternated with an approved fertiliser. Mite often proves troublesome by attacking the flower buds, with the result that the flowers appear to be damping. These attacks should be checked at an early stage by the use of the sulphur vaporiser or XL insecticide.

Gladioli.—The early-flowering varieties of Gladioli are useful subjects to grow for early spring flowering, but to be successful with them no attempt at hard forcing should be made. Place about six corms in a six-inch pot, this size being the most useful receptacle to use for decoration in pots, but where the spikes are required in quantity for cut bloom it will be found much better to plant them fairly thickly in boxes, say, three inches apart each way, covering the pots or boxes with finely-sifted leaf-mould to the depth of two or three inches. They should be allowed to remain under these conditions until the roots are plentiful and the top growth is about two inches high, when light should be permitted to reach them gradually.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Early Pot Vines.—Pot Vines should now be thoroughly ripe and in satisfactory condition for starting early next month. Although pot vines have gone greatly out of fashion, growers who are obliged to produce early Grapes still grow or buy a few annually; they give an extension of time to permanent vines, and provided they are ripe and well-rooted, yield good crops of fruits. The vines having been shortened back to their proper length some weeks ago, there will be little danger of bleeding; nevertheless, a dressing with styptic is beneficial. When properly arranged, the soil carefully rammed, and lightly top-dressed with loam and bone-meal, a quantity of fermenting leaves with a little horse-manure added, may be introduced, care being taken that the top of the ridge does not exceed the level of the pots. Over this the canes may be suspended in an arched position where they may remain until the lowest buds are pushing freely. Fermenting material should be renovated when necessary; this will economise and soften fire-heat, and render direct syringing almost unnecessary. Careful watering with tepid water is very important. The temperature may range from 50° to 55° at night, and so high as 65° during the day, admitting a little air to keep the atmosphere sweet. Early permanent vines respond to similar treatment, but the roots, having the run of inside borders, should first be properly moistened by one or two applications of water at a temperature of 90° to 100°. The syringe, as a matter of course, should be used, especially on old stems near the pipes, dry corners, and other surfaces. The temperature may range as above, rising a few degrees higher by day with sunheat, but no advance should be made on the night figures given for some time.

Midseason Vines.—These should now be pruned, and the house cleansed and put in working order without delay, so that it may be kept cool and airy to ensure so long a rest as possible for the vines. If other plants must be wintered in these houses they should be of the hardiest kind, otherwise constant shutting up at night will affect the vines throughout the following season. When the vines are pruned and washed, the cuts may be dressed with styptic. All root work should have been finished, and top-dressing the borders will be the concluding operation. This should include the removal of inside mulching, pricking up the hard surface of the borders, and applying a thin layer of fresh compost. The roots, as a matter of course, should be fairly moist, but if autumn watering has been neglected it will be well to allow them to remain on the dry side for some time after pruning.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Anemone coronaria.—There are many fine strains of the Poppy Anemone, and the roots of these may be planted at any time from autumn until spring, when the ground is in good condition, but the best results are usually obtained by planting them during late October and November. Fortunately, this Anemone thrives in the majority of gardens, yet, for some unknown reason, it simply will not grow in others, even if special care is devoted to the preparation of the beds, and it simply dwindles away in a year or two. It loves a warm, deep loam, and the beds should be prepared by digging in some well-decayed manure and a little mortar rubble, making all firm by treading before planting. Choose a strain that has been well selected and contains a high percentage of bright colours; the results greatly depend on the care and attention in selecting the strains.

Anemone fulgens.—The scarlet Windflower thrives in a rich, well-manured soil and a lightly shaded position. The planting of this may also be extended over a few months, but as the resting period is from June onwards, it naturally follows the best results are obtained from roots planted during early autumn.

Lilies.—The present month is a good time for planting all species of Lilium, for all should, so far as possible, be transplanted while the bulbs are dormant, and as many begin to make fresh roots early in the season, no time should be lost in attending to transplanting where it is deemed necessary. The yearly importations of L. auratum and a few other kinds will not take place for a time yet, but where it is contemplated buying stocks of any, they ought to be procured at the earliest opportunity and planted in their flowering quarters so soon as received. In preparing sites for these, good drainage should be provided, so that no stagnant moisture remains around the bulbs during the winter. A good compost of rich loam, leaf-mould and sharp sand suits the majority of Lilies, and some are benefited by the addition of peat. Surface mulching with well-decayed manure and leaf-soil during the growing season is an important factor in the successful cultivation of Liliums.

Border Chrysanthemums.—Although most of these may survive the winter in the open in many districts, it is always advisable to lift a few roots of each variety to ensure sufficient stock for propagating from if required. These may be potted up or placed in boxes in a cold frame for the winter, where they will provide ample material to propagate from in early spring. If it is impossible to find room for them in a cold frame, the old stools should have some fine ash placed over and around them and some dry Bracken strewn over them during severe frosts; such protection will usually be sufficient to carry them through an average winter.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Vacant Ground.—When the ground becomes vacant it should be manured and dug and laid up so roughly as possible to weather, which is extremely beneficial to the soil. When trenching ground, collect any weeds, leaves and rubbish, and work them into the bottom of the trench, making sure they are well-buried. Newly trenched ground may be given a dressing of fresh shell lime, and when the ground is required in spring, this may be forked in lightly.

Parsnips.—These are best left in the ground and lifted when required, therefore, during frosty weather, it is advisable to cover the bed with Bracken or straw to prevent the soil being frozen hard and thus render the roots difficult to lift.

Carrots.—If frames are available, a sowing of Carrots may be made in a fairly deep bed of soil, to provide useful roots in early spring. After sowing the seeds, water the bed with a fine-rosed can, and keep the frames closed for two or three weeks until the seeds have germinated, when a little air may be admitted on all favourable occasions. The seeds should not be sown too thickly, and overcrowding of the young plants should be prevented.

Tomatos.—Plants intended for early fruiting should now be sturdy specimens in three-inch pots. These should be placed on a shelf where there is plenty of light and watered with care, as excess of moisture will soon cause damping-off. If cuttings are available of any good fruiting variety, and these are inserted in sandy soil, and when rooted potted off singly and grown on in a moderate temperature, they should make useful early plants and fruit earlier than plants grown from seeds.

Celery.—If not already attended to, the final earthing-up of Celery should be done at once. Make the ridge wide enough at the bottom to enable plenty of soil to be placed around the plants. Press the soil firmly around the collar of each plant, and during severe frosts, afford a covering of straw or other protective material.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Turnips.—Late-sown Black Stone or other Turnips are now ready for use, and should have some soil drawn up to them to protect them from frost. Swede Turnips should now be lifted and stored in a frost-proof shed, where straw or mats placed over them should keep them in good condition. If in large quantities, it may be necessary to store them in "pots" or clamps, when sufficient earth should be placed over them and well beaten with the back of a spade to exclude rain and frost, and a thatch of drawn straw placed over all and secured by ropes.

Parsley.—In most establishments Parsley is in demand all the year round, so that steps should be taken to preserve the plants. A frame placed over the bed ready to receive the lights on the first appearance of hard frost, is all that is necessary, but no coddling should be attempted, for the more air and light the plants receive the better and longer will they maintain the supply.

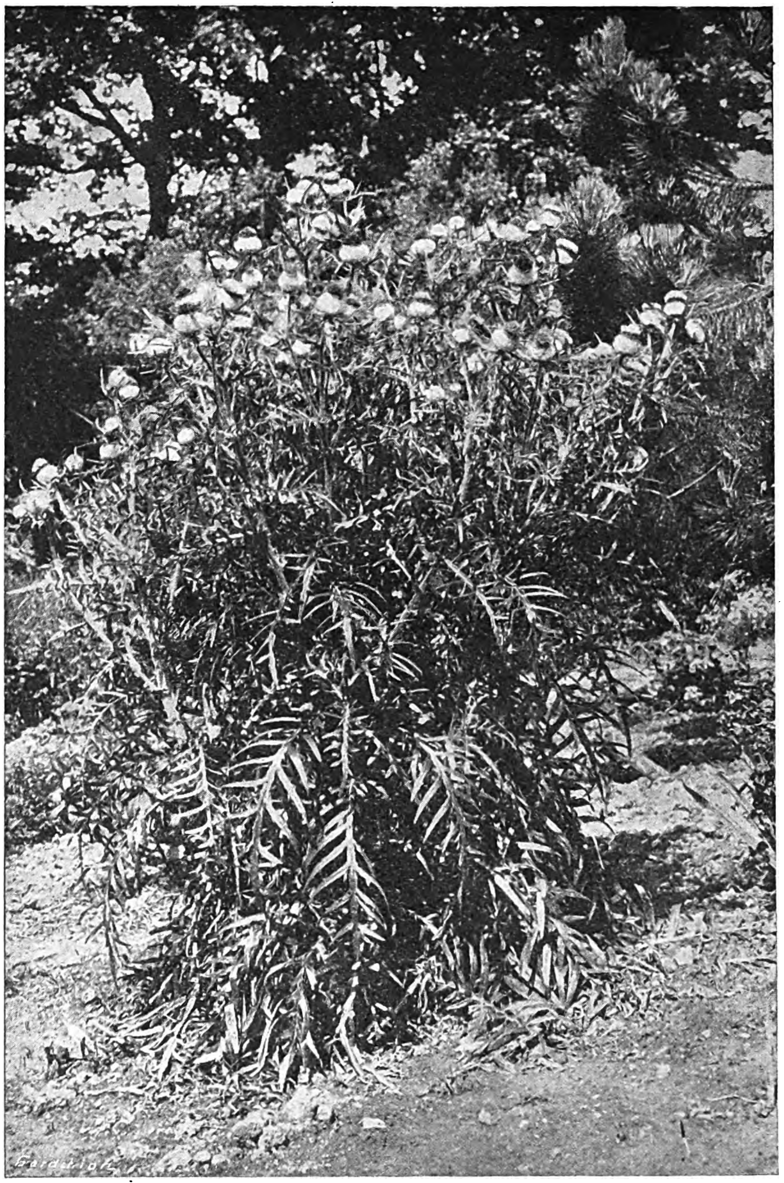

FIG. 182.—CNICUS ERIOPHORUS.

(see p. 402.)

Bulbs.—Hyacinths, Tulips and Narcissi which were potted or boxed up some time ago, should be examined at intervals, and removed from the plunging material when a good root-system has been established. Place them in cold frames from which hard frosts can be excluded, and move them into heat as required.

Winter Pruning of Wall Fruit Trees.—This work should be pushed forward so soon as the trees have cast their leaves. Being a cold job, it may be done more comfortably before the New Year than after. Where a supply of young growth has been laid in at summer pruning, a certain amount of re-arrangement of the branches will be necessary. A few of the oldest which have reached the limit of the space available should be removed with a pruning saw, the cut surface being pared off smoothly with a sharp knife, and the remaining branches spread out to cover the space. Breast-wood shortened in summer to four or five leaves should now be shortened to two or three buds. Any spurs which have become elongated, and project too far from the wall should be reduced or cut back completely. The leading shoots should be laid in full length, unless too vigorous, when they may be cut back to two-thirds their length; but where root-pruning is attended to regularly, such will not be necessary. Stone fruits resent hard pruning annually, and if sufficient young wood is left it materially reduces the amount made the following season. A serious attempt should be made to keep the branches straight, and this can only be done by attending to the young growths. In cutting back a leading shoot, cut to a bud facing the wall, and tie it close to the point of cutting. Examine all ties and replace those that show signs of causing damage. I prefer unwired walls, as I consider it almost impossible to produce a really good fan-shaped tree on a wired wall, and I have not, so far, seen one.

INDOOR PLANTS.

BAUHINIA YUNNANENSIS.

Linnaeus founded the genus Bauhinia in honour of the brothers John and Caspar Bauhin, authors, respectively, of *Historia Plantarum Universalis* and *Pinax Theatri Botanici*. The genus comprises some two hundred species, principally natives of the tropics.

The subject of this note is a most graceful, deciduous climber, and is an admirable subject for draping the roof of a cool greenhouse; a fine specimen grows in the corridor here. There is also a very fine specimen of it growing out-of-doors; it has flourished for many years in one of the bays that occur along the range of greenhouses, where it receives shelter and derives warmth from the wall of the Palm house. During the winter, suitable evergreen branches "tied in" give additional protection. The obliquely-elliptic, three- to four-nerved, glabrous leaflets, two in number, measure up to two inches long by one-and-a-quarter inch wide, borne on a rather stiff, inch-long petiole, and nestling between these twin leaflets is a flexile, awn-like growth some two lines long.

This climber has revelled in the past hot summer, producing its pendulous racemes in great profusion. Commencing to flower in July, it continued well into October. It belongs to the family Leguminosae and the sub-family Caesalpinioideae.

The pale pink blooms measure an inch across, the spathulate petals are pleasingly streaked with carmine, and the three upper ones have three or more streaks each, while the two lower have but a median one. The staminodes, seven in number, are inconspicuous, but the three perfect stamens bend downwards and are exserted some distance from the flower, displaying the carmine filaments; these, curling upwards, with the protruding and upcurled style, make a most attractive feature. The young growths may be terete, but are usually square-stemmed and grooved, while the main stems are flattened.

We owe the discovery of this plant to the indefatigable Abbé Delavay, who found it on the woody hills of Lokoshan, in the districts of Tapin-tze, in Yunnan. It was also found by Prof. Henry on mountains south-west of Mengtze, in the same province.

Bauhinia yunnanensis should present no difficulties out-of-doors in favoured districts, climbing by means of its flattened tendrils it would ramble over pergolas, trees, etc., and make an attractive feature. *J. Blades, University Botanic Garden, Cambridge.*

SCUTELLARIA MOCINIANA.

This very charming warm-house plant possesses many qualities sufficient to commend it to all lovers of indoor gardening, not the least being a propensity for producing its brilliant blooms in great profusion, and even small specimens create a fine effect when arranged on the side stages of the glasshouse. It succeeds admirably in a mixture of loam and leaf-soil with the addition of a little well-decayed manure and some sharp sand. Nice little specimens may be produced in five-inch pots, and, if desired, may be grown on into large plants. The young plants should be "stopped" once or twice to induce a bushy and compact habit of growth, and when old plants are grown on they should be pruned well in early spring before being repotted. Cuttings of half-ripened shoots root readily at almost any season, and soon form effective specimens. Almost every shoot terminates in a truss of brilliantly-coloured, Labiate flowers, the corolla being bright scarlet and the interior of the lip yellow; the tube is clothed with minute hairs, and the limb is erect. The petiolate leaves are ovate, hispid above, glabrous beneath.

S. Mociniana thrives in an intermediate temperature and is classed as a summer-flowering plant, but in reality it is in flower for the greater part of its growing season. Introduced from Mexico in 1868, this brilliant plant well merits extended culture, especially as the flowers last well when cut. *Ralph E. Arnold.*

COLUMNEA GLORIOSA.

A native of Costa Rica, and closely allied to Aeschynanthus, this late-flowering indoor plant is named after Columna, an Italian writer on plants in the sixteenth century.

It makes a good hanging basket subject, its fine scarlet and yellow flowers showing prominently above the reddish-purple foliage.

C. gloriosa imparts a charm to any stove during the winter months, and even when the flowers are waning somewhat, its long stems clothed with coloured foliage and hanging from the basket, make it quite attractive.

AESCHYNANTHUS BRACTEATA.

A native of India, Aeschynanthus bracteata should have a place in every stove. Being epiphytic, good drainage is absolutely necessary to its well-being, and it should be grown in suspended baskets after the manner employed for some Orchids.

Chopped Sphagnum-moss, fibrous loam and fibrous peat should form a suitable compost for this Aeschynanthus, the flowers of which are scarlet and yellow, and are most welcome at this season of the year. Aeschynanthus bracteata delights in a humid atmosphere.

BIGNONIA BUCCINATORIA.

A native of Mexico, this is one of the most beautiful climbers in blossom now, under glass in the Botanic Garden, Edinburgh, for its long, tubular flowers make it most attractive. It requires plenty of room, and should be trained to the roof of a tall greenhouse. Its leaves are divided into three leaflets, the middle one often forming a tendril or hook as a means of climbing. The flowers are red in colour, with an orange throat, tubular and usually about four inches in length.

Like most tall-growing climbers, B. buccinatoria succeeds best when planted out in prepared borders and the main stem trained up to the roof, where the shoots will be exposed to plenty of sunshine. The conspicuous colour of the flowers make it an acquisition among indoor plants during the autumn. Bignonia Cherere is a synonym, and under this name it is known to many. *D. W., Edinburgh.*

HARDY FLOWER BORDER.

CNICUS ERIOPHORUS.

Cnicus eriophorus, Roth., is a comparatively rare British plant, and forms a most handsome object where there is space available to grow it. The specimen illustrated (Fig. 182), grown at Brockhurst, measured seven feet six inches tall, and the flower heads were about as large as golf balls.

The plant is usually found on limestone soils, but the specimen figured was grown in our ordinary garden soil, with no limestone at all, and is a far finer plant than I have ever found wild. *Frederick J. Hanbury, Brockhurst, East Grinstead.*

PAEONIA FORRESTII.

This species is, at least superficially, very like Paeonia lutea, differing chiefly in the greyish-green, or almost bluish-grey, colour of its leaves, in having rather more ample growth, and in the somewhat larger flowers, the brownish-red basal colouring of the deep yellow segments being most pronounced.

P. Forrestii is an easily-grown species and a good plant for the border or semi-wild garden; as with many of the Paeonies, it enjoys an abundant supply of good leaf-soil and, when once established, immunity from disturbance.

It is, in my opinion, a better garden plant than P. lutea, primarily by reason of its attractively-coloured foliage and rather larger flowers, but there is a fascination attaching to most of the now numerous Paeony species, and they may well play, in time, a quite large part in the embellishment of the less formal parts of the garden. *R. E. A.*

TREES AND SHRUBS.

EUONYMUS RADICANS VAR. KEWENSIS.

Among the varieties of Euonymus radicans there are several very useful shrubs for the rock garden. The variety foliis variegatis is a well-established favourite, and Silver Queen is a variety which may frequently be seen on the show stand. Incidentally, the writer would suggest that Ivory Queen would be a name better descriptive of this variety, since the plants which he has grown were ivory, rather than white, in their variegations; it also lacks the graceful habit of those varieties which are definitely climbing or creeping in their growth, such as foliis variegatis.

Euonymus radicans var. kewensis does not appear to be so well known as it deserves, although it has the advantage of passing under the varietal names of minimus and microphyllus, in addition to that quoted above. Both these alternative names adequately describe the plant, which is a completely dwarf edition of E. radicans, possessing certain other distinctive and useful characters. For instance, the leaf-veins are light green in colour and change to crimson in the autumn, so that the plant lights up its own foliage solely by means of the tinted veins. Apart from the veins, the leaves are dark green and of some substance, generally less than half-an-inch in length and half as wide, ovate, and the margin is practically entire, although more or less rolled in such a way as to hide the few minute teeth which may or may not be present.

In the garden, E. r. var. kewensis forms a lovely little tangled mat only two or three inches high, which will trail along the ground or over a rock until it reaches anything that will afford support. Thereafter it will climb by means of its twining, wiry stems. If support is lacking, the plant gradually increases in diameter by means of the trailing shoots which are thrown out in all directions. Upward growth is very slow, but the centre rises until in extreme old age, it is a twisted mat of interlacing stems.

E. r. var. kewensis flourishes in sun or shade, and is not particular as to soil, although it probably prefers the compost to be fairly light. It should be planted in front of or behind a large rock, which it will ultimately clothe in a hummock of dull, dark green (changing to a richer tone as the season advances), provided that it can be induced to grow in the right direction.

This indispensable shrub was introduced by the late Professor Sargent, who brought it from Japan and introduced it to this country through the medium of Kew. *L. C.*

VIBURNUM TINUS.

Although such an old favourite in the gardens of all classes, Viburnum Tinus (Laurustinus) is still one of the most useful of evergreen shrubs by reason of its hardiness, its winter-flowering—it is in bud and flower from October to April, inclusive—and its adaptability to shaded and dry, starved places. It makes an especially good undergrowth for tall trees, although absence of sun lessens its freedom of flowering, or even stops it altogether. It is surprisingly hardy for a native of the Mediterranean and south-east Europe, and came through 20° of frost last winter uninjured, although some of the trusses of flower buds were killed where most exposed to the east wind. It succeeds, more or less well, in any reasonable soil, but does best on warm soils, especially near the sea. Its one shortcoming is that the flowers and buds soon drop when cut.

It is one of the easiest shrubs to propagate, either in the autumn, or by well-ripened shoots in June or early July. Growths touching the ground often root naturally or are easily induced to do so by placing a heavy stone on them. Cuttings I put in a cold frame in June, 1921, are now plants six feet high and as much in diameter.

There are several varieties of this shrub. V. T. var. lucidum has larger leaves, flowers and trusses, but is less hardy and not so compact; var. hirtum is very vigorous and has downy leaves; variegatum has golden-yellow variegated leaves; and pyramidale is a good subject for a garden hedge, not clipped, of course, but kept in shape by judicious pruning. *A. Petts.*

ABUTILON MEGAPOTAMICUM.

ABUTILON megapotamicum (syn. A. vexillarium), a shrub belonging to the Natural Order Malvaceae, was introduced from Rio Grande in 1864. The graceful habit and beautiful colour of the flowers present a very pleasing spectacle, and make this shrub worthy of consideration as an addition to the garden.

The flowers, with dark red sepals, pale yellow petals, and dark brown stamens which protrude from the centre beyond the petals, form a fine colour contrast. Being pendulous and bell-shaped, they are of striking appearance. The leaves are small and pointed, and are borne on stems which attain a height of three to six feet if grown against a south wall, an aspect in which this shrub may be considered hardy. In this position it will flower from late summer until winter.

This Abutilon may be propagated easily from hard-wooded cuttings, taken either in September or early spring, inserted in a compost of equal parts of loam, peat and leaf-mould, with the addition of some sharp sand, and placed in either a cool greenhouse or frame until May, when they should be planted out. *R. E. Moore, Botanic Garden, Cambridge.*

ALPINE GARDEN.

CAMPANULA GARGANICA VAR. MAJOR.

A VERY beautiful effect is produced here by a couple of plants of this fine variety of the variable Campanula garganica on the face of a dry, double rock wall.

Planted at the base of an abutment, this Bellflower has spread freely and has found its way along the face of the wall, lying as close to it as if it was a self-clinging plant. It is much admired, as its fresh green leaves are accompanied by hosts of large, flat flowers of blue, with a white centre. The other plant is almost equally fine, on another low wall, where it is planted so that it had only a foot or so to clamber along the face until it reached the level top of the low wall. This it has done and presents a charming picture as well.

This is one of the finest forms of C. garganica, although I have a special liking for the lighter coloured C. g. var. hirsuta.

VERBENA CHAMAEDRYOIDES.

THE reference to this plant in the "Notes from Edinburgh" (p. 345) as being tender, induces me to write a short note regarding it, especially as I had flowers sent me a month or two ago from a rock garden in Scotland, where it had been planted under the impression that it is hardy. The late Reginald Farrer made some pertinent remarks concerning it in *The English Rock Garden*, and readers who have this work may look it up if they think of adding Verbena chamaedryoides to their collections.

This bright scarlet Verbena, which came from Buenos Aires in 1837, attracts the notice of all by the brilliance of its flowers, and a good plant trailing over the rockwork and well dowered with its heads of flowers, is not one which will be passed by without admiration. Yet it is too tender for many gardens, save those in the most favoured localities in the south and south-west and, even there, is not to be relied upon, so that the precaution of rooting some cuttings in early autumn, to be kept under glass, is a wise one unless the owner of the garden is prepared to purchase plants annually.

This Verbena is probably the hardiest of all the plants of the genus, but I have never tried the species called V. venosa, which has heliotrope-coloured flowers, and which also comes from Buenos Aires, and I believe it is no hardier than V. chamaedryoides, if as hardy.

But, as Farrer stated, "No Verbena worth the growing is really safe and hardy and capable of permanent establishment in any average English garden." With this I cordially agree. *S. A.*

SAXIFRAGA FORTUNEI.

THE note by Mr. Will Ingwersen on page 342 regarding Saxifraga Fortunei is a timely one, seeing that at the late season at which it blooms it is of much value in the rock garden. These late-flowering plants are always keenly appreciated by the lover of the rock garden, and such information regarding this Saxifrage as is given by Mr. Ingwersen is welcome.

S. Fortunei is so nearly hardy that it should be grown wherever possible, and one is interested in learning that Mr. Ingwersen grows his plant in a cool corner of rich soil. In ths district, where we have an average rainfall of about fifty inches per annum, I should hesitate to plant S. Fortunei in rich soil, and have found it advisable to keep it in the moraine and in a sunny place. I had one plant in a moraine with a small proportion of old mortar-rubble in the compost and facing full south, for half-a-dozen years without any protection in winter. It eventually succumbed to a severe frost.

This Saxifrage deserves all the praise given it by Mr. Ingwersen, and I hope readers who have their gardens in mild localities will bear it in mind when adding to their plants. *Dumfriesshire.*

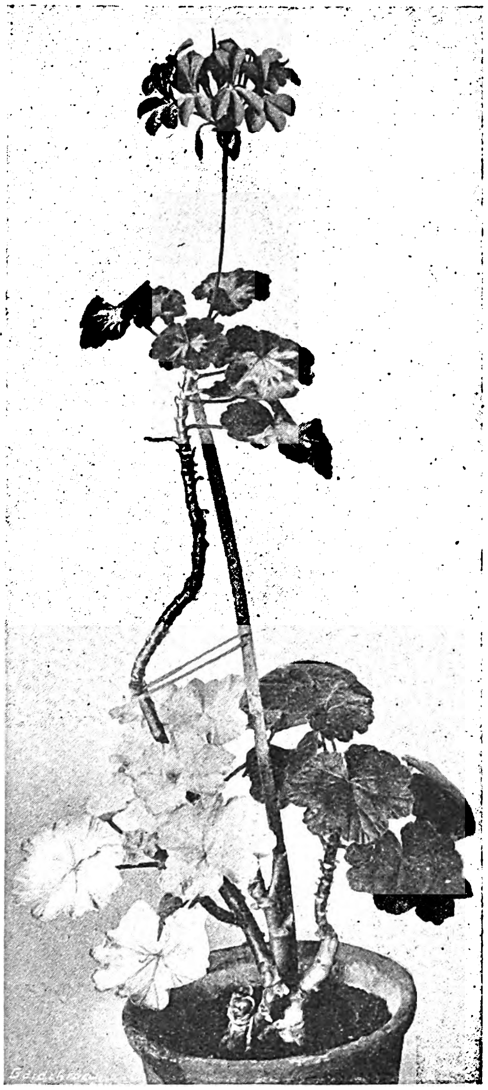

FIG. 183.—PELARGONIUM HAPPY THOUGHT.
Showing white, green and variegated leaves.
(see p. 405.)

NOTES FROM EDINBURGH.

AMONG the many plants now ripening their growths, several are conspicuous owing to the beautiful colouring of their foliage.

In the collection of Barberries, B. aggregata var. Prattii, with coral-red berries and coloured foliage, is a desirable plant; it seems to berry well in all seasons and almost in any position. The long, arching stems of B. dictyophylla, covered with white meal, contrast with its brightly coloured foliage, while among the many other Berberis species now attractively tinted with red are B. Coryi, B. aemulans, B. capillaris, B. virescens and B. Wilsonae. A different note is struck by the soft yellow shades of B. sinensis and B. brachybotrys.

Near to the collection of Barberries are the many species and varieties of Oaks. Here, owing to their stature, the various shades are more pronounced. Yellows and light browns predominate, and although these are beautiful, the most outstanding plants are the Scarlet and Red Oaks, Quercus coccinea and Quercus rubra, respectively. It is a great pity that these two species are not planted more frequently, as they are noble trees throughout the season, and during this period of the year, give a wealth of colour.

Another subject well worth growing for its beautiful autumn colouring is Zelkova crenata; for the last three or four weeks the pink and red shades of its foliage have made it very effective against the dark background of a group of Pines. Beside the hedge of Rhododendron praecox, its leaves now turning yellow, the many species of Enkianthus have given a variety of tints; the most prominent being E. cernuus, dull red, and E. tectus, soft yellow.

From the top of the hill overlooking the valley which runs through part of the garden, a great array of colour is seen. From this view-point many subjects stand out by reason of their strong colours. Here, again, the Scarlet Oak brightens the scene in contrast with the many shades of yellow and orange. Down in the valley can be seen a tree of the purple-leaved Sycamore, its leaves now reddish-purple. The many species of Pyrus and Prunus also contribute to the general bright colour scheme.

Among the many species of Pyrus, one of the brightest is P. Aucuparia var. discolor. This plant, viewed against a neighbouring Yew, has been a glorious combination of colour. The foliage was tinted yellow on the lower branches, gradually changing to a pinker shade until, at the top of the tree, the leaves were a bright pink. Among the recently introduced species, P. Sargentiana, with its large leaves now red and gold; P. Wilsoniana, with bright red foliage; and P. Vilmorinii, dull red, are all good subjects for autumnal effect.

In the other sections of the genus, Pyrus Toringo, with scarlet fruits and golden foliage showing well against the background formed by a large Yew, is very striking, while near the pond, the Wild Service Tree, P. Torminalis, was a blaze of reddish-bronze.

The various species and varieties of Prunus before they finish their growths take on delightful shades of yellow and bronze, the most charming at present being P. serrulata, a mass of pinkish-bronze.

Reflected in the pond can be seen the many tints of the surrounding plants. At the west end, the graceful Salix daphnoides, its leaves now golden-yellow, is viewed above a flame-coloured plant of Euonymus alatus. At the other end, the browns of the Taxodium distichum and Quercus imbricata, contrast with the yellow of the Iris species planted at the edge. A plant that never fails to attract attention at this season is Stranvaesia Davidiana, a mixture of bright red and green.

A genus of plants which always proves interesting at this season is Cotoneaster, with bright berries and richly coloured foliage. Owing to the great number of closely allied species and varieties, it is extremely difficult to make comparisons, but mention may be made of a few which now brighten the rock garden. The well-known C. microphylla, covering a mound, is very striking, its scarlet berries being seen to effect among the dark green leaves. C. horizontalis is attracting attention by taking on a mixture of all shades—best described as a coat of many colours. The variety perpusilla is quite distinct, with its leaves now reddish-purple. Another, with a similar type of growth, C. adpressa, is now dull red. At the entrance to the rock garden one of the larger species, C. divaricata, although not fruiting so well as some of its relatives, is a blaze of scarlet.

The most striking subject on the rock garden is Berberis Thunbergii, now a bright mass of orange, orange-scarlet and scarlet. Planted on a prominent part of a mound, it can be seen from some distance.

Among the several interesting subjects under glass, mention may be made of Dichorisandra thyrsiflora, a native of Brazil, which has handsome blue flowers borne on stems five to seven feet high, clothed with dark green leaves about nine inches long.

Momordica cochinchinensis, from tropical Asia, an ornamental climbing Gourd, is in fruit and is very striking, its large, red, spiny, oval-shaped fruits suspended from the roof making this subject an attractive feature in the tropical stove.

Rhodochiton volubile, a native of Mexico, is a handsome greenhouse climber, its pale red calyces making it effective at the present time.

Another plant worthy of mention is Fuchsia bacillaris, from Chile, which is planted out in a small alpine house. Its growths are now laden with reddish-pink flowers, and it is highly attractive. *David Wilkie, Royal Botanic Garden, Edinburgh.*

THE GENUS PRIMULA.

(Continued from p. 388.)

SPECUICOLA (Rydb.). Bluffs P.
(Farinosae).

THIS dwarf perennial is a sub-species of P. farinosa. The short rootstock produces a tuft of thin leaves two to five inches long, with elliptic, blunt blades gradually tapering to a winged stalk; margins sinuately toothed; both surfaces slightly mealy when young, smooth when mature. Flower stem barely one inch tall, bearing an umbel of ten to twenty dark violet blossoms with yellowish tubes, on stalks half- to three-quarters-of-an-inch long. Corolla flat, or slightly concave, about half-an-inch across, with wedge-shaped, broadly-notched lobes; tube cylindrical, about half-an-inch long. Flowers from February to August.

Grows in loose soil under overhanging limestone cliffs, along the San Juan River, near Bluffs, in Utah, U.S.A.

Culture: Plant it in good, friable, calcareous loam in a fairly damp, shady spot.

SPHAEROCEPHALA (Balf. f.). Spherical-headed P.
(Capitatae).

A handsome plant closely allied to, if not a sub-species of, P. capitata, with a tuft of non-downy foliage which is contemporary with the flowers; the leaves are three to five inches in length and have narrowly oblong or broadly lance-shaped, thin, blunt or sub-rotund blades, tapering to short, winged stalks; margins irregularly toothed as though gnawed by insects. Flower stem about twelve inches tall, stout, coated with white meal towards the tip, bearing a spherical head of many dark purple, delicately scented blossoms. Corolla concave, about half-an-inch across, divided into five broadly wedge-shaped or nearly square, deeply notched lobes, at times with a tooth in the sinus; tube cylindrical, dilated upwards, about three-eighths-of-an-inch long, reddish externally. Flowers in September. In cultivation in 1920.

Grows in marshes in openings in Pine woods, and in stony alpine meadows, in north-western Yunnan, western China, at 10,000 to 14,000 feet above sea-level.

Culture: As for P. capitata.

SPICATA (Franch.). Spicate P.
(Soldanelloidae).

An extremely delicate annual or biennial species with relatively large blossoms on such slender stems that they sway with the least breath of wind. The rosettes of membranous leaves have oval or oblong-oval, blunt blades tapering somewhat abruptly into narrowly-winged stalks longer or shorter than the blade, in all one-and-a-half inch to three inches long; margins sharply toothed; both surfaces covered with short, glandular, meal-producing hairs. Flower stem very slender, four to eight inches tall, bearing an elongated umbel or spike of stalkless, horizontal or somewhat pendulous, bright blue, faintly fragrant blossoms. Corolla three-quarters- to one-and-a-quarter inch across, slightly concave, with oval, notched, irregularly toothed lobes; tube short, scarcely so long as the calyx. Flowers in September and October. Illust. in *Jour. Roy. Hort. Soc.*, Vol. XXXIX, 1913. Introduced in 1908.

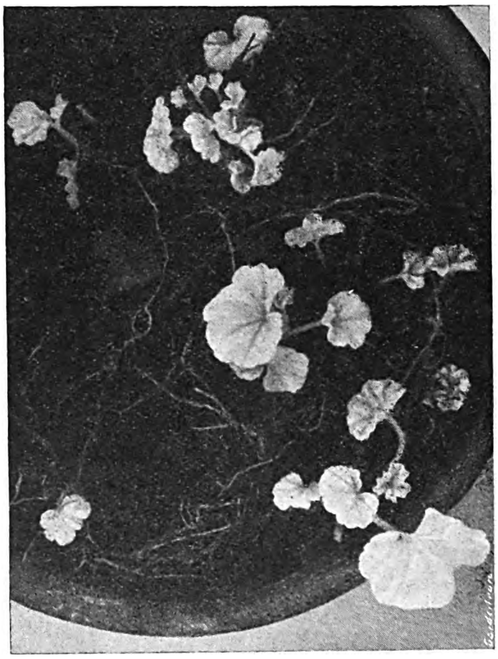

FIG. 184.—PELARGONIUM HAPPY THOUGHT.
Showing albino cuttings from inverted roots.
(see p. 405.)

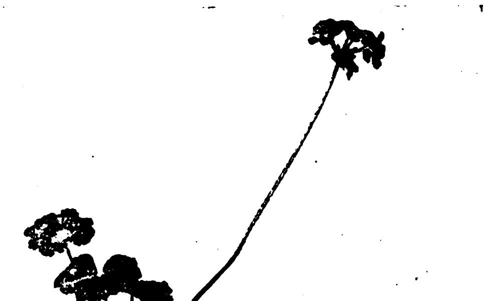

FIG. 185.—PELARGONIUM MRS. POLLOCK.
Showing green-leaved plant (left) raised from a root-cutting.
(see p. 405.)

Grows on dry rocky slopes and on the ledges of cliffs in valleys, in open, sunny spots, on the eastern flanks of the Tali range, in western Yunnan, western China, at about 11,000 feet above sea-level.

Culture: Grow it in good fibrous loam with plenty of grit, in an open, sunny, well-drained spot.

STENOCALYX (Maxim.). Narrow-calyxed P.
(Farinosae).

A pretty, deciduous, perennial species with a rosette of rather flaccid leaves quite devoid of meal, with oval or spathulate, blunt blades, tapering to a short, winged stalk dilated and sheathing at the base, in all two to four inches long; margins usually quite entire, or obscurely toothed. Flower stem four to nine inches tall, bearing an umbel of about six lilac or lavender-blue, rarely white, fragrant blossoms. Corolla about one inch across, with short, rounded, bilobed, notched segments; tube cylindrical, about as long as the calyx.

Grows in dry, loose soil, on warm, sunny banks on alpine moorlands on the mountains of western Kansu, in north-western China, at 8,000 to 11,000 feet above sea-level. In cultivation in 1920. *Gard. Chron.*, 1915, Vol. LVIII, p. 332, Fig. 117.

Var. dealbata (Farrer) has stiffer leaves than the type, with more egg-shaped- wedge-shaped blades and regularly toothed margins; both leaf surfaces more or less covered with white meal. This form grows under the same conditions as the type, but is found at an elevation of 13,000 feet above sea-level.

Culture: Good, friable loam and grit in an open, sunny, well-drained spot, should suit them.

STIRTONIANA (Watt). Stirt's P.
(Minutissimae).

A delightful little Himalayan perennial species of very dwarf, tufted habit, with egg-shaped, spathulate leaves, rounded at the tip, tapering at the base into a more or less distinct, narrow stalk, in all from half- to three-quarters-of-an-inch long; margins regularly and sharply toothed; both surfaces clothed with fine glandular hairs, non-mealy. Flower stem obsolete; flower solitary, purple, on a short, slender stalk sunk among the leaves. Corolla concave, half- to five-eighths-of-an-inch across, with broadly heart-shaped, very deeply notched, entire or bluntly toothed lobes; tube cylindrical below, dilated upwards, about twice as long as the calyx. Not in cultivation.

Grows in patches in stony soil on the slopes of the Kanglanamo Pass, in the Sikkim Himalayas, at 14,000 to 16,000 feet above sea-level.

Culture: Peat and gritty loam in a well-drained, open situation, with underground moisture when the plant is in growth and protection from damp in winter, are the conditions suggested.

STOLONIFERA (Balf. f.). Stoloniferous, Toothed P.
(Denticulata).

This deciduous perennial is probably a sub-species of P. denticulata, it produces several compact rosettes of more or less smooth, non-downy foliage from large, naked stolons about two inches long. The leaves, which are well developed at flowering time, are about three inches long and have broadly lance-shaped or narrowly egg-shaped-oblong, blunt, membranous, non-mealy blades tapering into short, winged stalks; margins furnished with large or small, blunt or saw-like teeth. Flower stems four to twelve inches tall, thickening when in fruit, smooth below, more or less mealy upwards, bearing a few-flowered umbel of pale rose, rose-lilac, or violet, fragrant blossoms with an orange eye. Corolla flat, about five-eighths-of-an-inch across, with egg-shaped, very deeply-cleft segments; tube cylindrical, slightly dilated upwards, equalling the calyx in length, more or less mealy externally. Flowers from March to May.

Grows in marshes and on the banks of streams in the valleys of the Tali and Lichiang ranges, in Yunnan, western China, at about 8,000 feet above sea-level.

Culture: As for P. denticulata, with protection from frost in winter.

STRAGULATA (Balf. f.). Kiuchiang P. (Bella).

A very beautiful little perennial plant of dense, compact habit, with close rosettes of numerous pale green, wedge-shaped leaves tapering to a short stalk, in all hardly half-an-inch long; margins above the middle very deeply incised, below the middle entire; both surfaces the same tint and covered with minute, meal-producing, glandular hairs. Flower stem slender, about five-eighths-of-an-inch long, covered with meal-producing, glandular hairs, and bearing a solitary, rich purple-rose blossom with a white eye, about five-eighths-of-an-inch long, and the same measurement in width. Corolla with spreading, deeply divided lobes; tube twice as long as the calyx, with a dense tuft of snow-white hairs in the throat. Flowers from June to August.

Grows in stony alpine pastures on the mountains of the Salween-Kiuchiang Divide, in south-eastern Tibet, and in moist, peaty moorlands on the Beimashan, in north-western Yunnan, at 14,000 to 15,000 feet above sea-level.

Culture: As for P. bella, of which it is considered a sub-species. *A. W. Darnell.*

(To be continued).

PLANT VARIATIONS.

(Continued from p. 385.)

SPORTS, CHIMAERAS, VARIEGATION AND MUTATIONS.

PELARGONIUM ZONALE VARIETIES.

MANY varieties of these plants have silver or white-margined leaves, *i.e.*, white skin over a green core. These frequently produce green-leaved sports from the stems and also from the roots. Propagated by means of root-cuttings, they give rise to green-leaved plants, *e.g.*, May Queen, Chelsea Gem, Flower of Spring, Caroline Schmidt, etc.

Such varieties as Freak of Nature and Happy Thought (Fig. 183) which have white or yellowish leaf-centres and green margins, also produce green-leaved and albino sports, and when grown from root-cuttings, white shoots only are produced (Fig. 184). These, owing to the absence of chlorophyll, soon die.

It may be of interest to state that Freak of Nature, in its normal variegated state, flowers, but fails to set seeds. The green-leaved sport is quite fertile, and produces green-leaved plants from seed. The albino shoots also produce flowers, and seeds are formed. The resulting seedlings, however, are pure white and rapidly die. Some albino shoots have very small, green ticks or patches on the stipules, and seeds from such shoots will give an occasional green seedling.

In the case of Happy Thought, the seedlings come green. No breeding up to the present has given us any plant like either of the parents.

Varieties having whitish stems, petioles, peduncles, and pedicels, and also having the centres of the leaves of a pale colour, due to a green skin over the white core of the plant, always give rise to white shoots when propagated by root-cuttings, *e.g.*, West Brighton Gem, and the green-over-white forms of many varieties such as Freak of Nature, Paul Crampel and Flower of Spring.

The variety Mrs. J. C. Mappin has variegated leaves similar to Flower of Spring. The flowers are whitish. It was raised by W. H. Townshend, gardener at Clapham Park, and was sent out by H. Cannell (*Gard. Chron.*, 1877, Vol. ii, pp. 18, 119). In *The Garden*, 1881, Vol. xix, p. 121, it is stated that this variety sometimes "sports." This variety occasionally produces red flowers and whitish flowers on the same plant. It also produces green-leaved shoots having red flowers, and also shoots in which the leaves are green-over-white. In this case the flowers are of the whitish colour of the typical plant.

Root cuttings raised from a typical whitish-flowered and variegated-leaved plant have all had green leaves and red flowers.

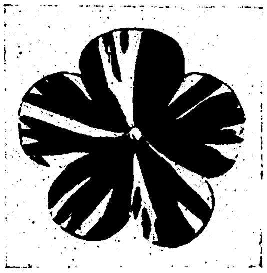

FIG. 186.—PELARGONIUM NEW LIFE.

Zonal tricolor Pelargoniums, such as Mrs. Pollock, when propagated by root-cuttings give rise to green-leaved plants (Fig. 185).

Zonal bicolor Pelargoniums, such as Golden Harry Hieover, come true from root-cuttings.

Pelargonium Kleiner Liebling, a very dwarf, small flowered plant obtained from Germany, gives a much larger plant with larger flowers when grown from root cuttings.

Pelargonium New Life is a variety reputed to have originated in the Isle of Wight about 1876, as a sport from Vesuvius. This has single, scarlet flowers, with irregular, white stripes on the petals (Fig. 186). It has almost disappeared from gardens. The plants grown at Merton, although in perfect health, and producing an abundance of flower buds, yet fail to develop open flowers. Eight plants were raised in 1927 from root cuttings, all of which resembled the parent plant. The plant is figured in *The Floral Magazine*, 1877, t. 288, and *Gard. Chron.*, 1877, ii, p. 203 and 1878, i, p. 204-5. Pelargonium Double New Life, a sport from Vesuvius, introduced in 1892, has small, double flowers. The ordinary corolla is apparently suppressed and the flowers are made up of small, red and white petal-like growths, probably modified petals and stamens. It will sometimes produce normal scarlet flowers among the abnormal ones. When grown from root-cuttings and from seeds, this plant produces normal, single, scarlet flowers, indistinguishable from Vesuvius. The typical double form produces seeds when pollenated from the single-flowered form.

Pelargonium Salmon Fringed was introduced by Messrs. Jarman and Co., Chard, in 1918. It has thick, shiny, leathery leaves, not unlike an Ivy-leaved Pelargonium. The petals are laciniated and of an orange-scarlet colour. The plant is much given to sporting, giving rise to large, flat, pubescent leaves, and flowers that have entire petals, as in an ordinary Zonal Pelargonium. The same thing happens when raised from root-cuttings (Fig. 187). It is interesting to note that Kleiner Liebling, Double New Life and Salmon Fringed, which have imperfect flowers, give normal hermaphrodites from root-cuttings. Sterility in these cases is probably due to chimaerical structure.

REGAL, SHOW OR DECORATIVE PELARGONIUMS.

Many named varieties of these sections of Pelargonium have arisen, both spontaneously and by means of root-propagation from other sorts.

At Merton, the following kinds have given distinct sports from root-cuttings: Pearl, Mrs. Gordon, Don Juan, Escot, Geoffrey Heard, Empress of India, Duchess of Edinburgh, Queen Victoria, and Distinction.

IVY-LEAVED PELARGONIUMS (P. PELTATUM).

L'Elegante, with silvery variegation, and aurea variegata, with golden variegation, both produce green shoots from root-cuttings.

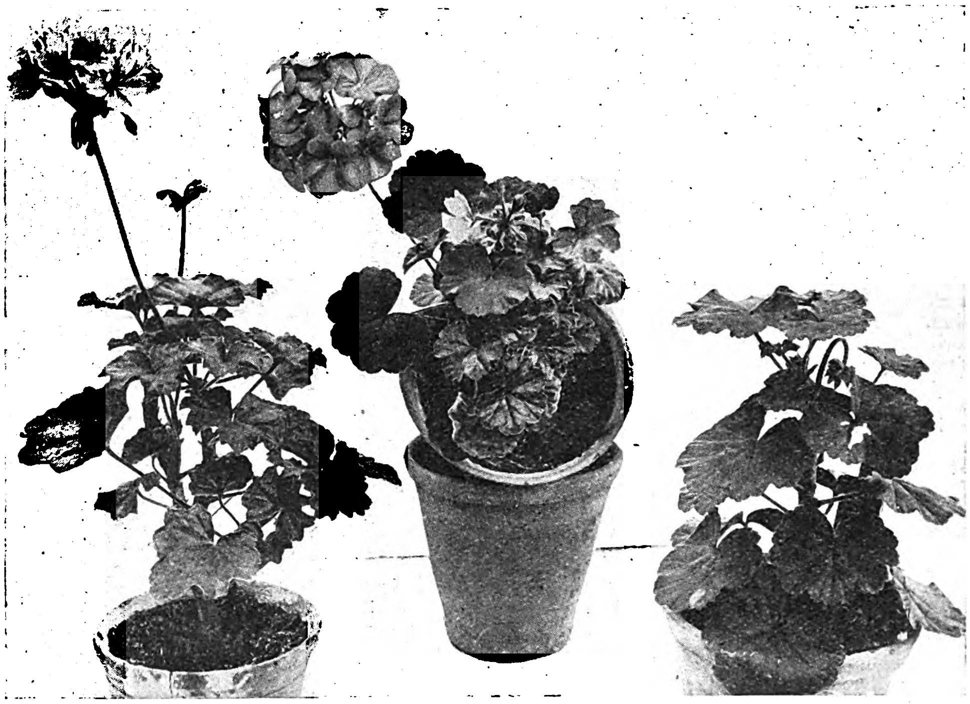

FIG. 187.—PELARGONIUM SALMON FRINGED.

Showing zonale sport (centre), and a similar variation from a root-cutting (right).

Scarlet Crousse sometimes sports a lilac-flowered branch which resembles Jeanne d'Arc.

Generally, the sports of all the foregoing are brighter hued than the parent plant, and sometimes of a distinct colour.

Space will not allow of a full description of these sports here. *A. Hoskings, Garden Superintendent, John Innes Horticultural Institute, Merton, Surrey.*

(To be continued).

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PROBLEMS OF PLANT LIFE.[*]

XIII.—The Enigma of Dew.

IN periods of drought the attention of the gardener is naturally directed to the action of the dew, and its economy in plant life. The subject, however, is too often studied from a provincial point of view, which leads one to assert that dew rises, another that it falls, and a third that neither of these is right. Those who state that it falls appeal to Aristotle, Wordsworth and others, while those who affirm that it rises claim to rest their contention on observation. The fact is that different people use the term in different senses, and apply it to more than one set of phenomena. In one case the dew falls, in another it results from condensation, while in yet a third case, as yet but little studied, it is spoken of as an underground or internal formation. Modern writers, such as the author of the article on dew in the latest edition of the *Encyclopaedia Britannica*, tend to ignore the historical aspects of the subject, and limit their remarks to the form with which we are more particularly familiar in this country.

The word, however, occurs in the authorised version of the Old Testament about thirty times, and the dew is repeatedly stated to fall. It is called the dew of Heaven (*Genesis*, 27. 28); the clouds are said to drop down dew (*Proverbs*, 3. 20); the hair becomes wet with it (*Canticles*, 5. 2); as did the whole body of the King Nebuchadnezzar (*Daniel*, 4. 33). It forms during the night season (*Numbers*, 11. 9) just as does the dew in our own land, and its effects are similar. We read of a cloud of dew in the heat of harvest (*Isaiah*, 18. 4), and find (*Hosea*, 6. 4) that it vanishes so soon as the sun begins to act upon it. Yet it is evident from the story of Gideon's Fleece that two kinds of dew were known to the Hebrews. This explains how it was possible for the fleece to be dry when all around was moist, and wet when the ground was dry. Dew is deposited in Palestine during the winter when the weather is fine, but in summer and autumn it takes the form of a fine rain, or "Scotch mist." In autumn the westerly breezes are surcharged with moisture taken up from the Mediterranean which condenses when it meets the cooler night air of the land surfaces. When these damp winds reach the uplands, in particular, the moisture assumes the form of a dense mist which is deposited or falls from heaven as dew. Strictly speaking, we might call it rain, but since it serves the same purpose as the dew of our own land, it is not to be wondered at that the translators have used the word dew to represent the original Hebrew word *Tal*. Every recent writer on this subject acknowledges indebtedness to the Rev. James Neil, M.A., for his careful and lucid interpretation of the Scripture dew.[*]

It is to the biblical allusions, therefore, that we owe the idea that the dew falls. When Wordsworth, in his pastoral—the Pet Lamb—tells us that the dew was falling fast, he is following ancient usage and popular tradition. The statement would be untrue if pressed as a scientific fact in English soil, but not if used of one of the lambs of David's flock. But the biblical dew was from the economical standpoint the exact equivalent of the dew which we speak of as rising from the ground in this country. The statement that dew rises is not strictly accurate. Here is Dr. G. C. Simpson's explanation of the physics of dew formation. "On a clear night all bodies radiate more heat than they receive by radiation; and so does the air near the ground. There is therefore a general fall of temperature. If the temperature of the air falls to dew point, mist or fog appears. The fall of temperature of the air, however, is frequently not sufficient for the air itself to reach the dew point; but the temperature of grass and other bodies not in good thermal contact with the ground, falling more rapidly than that of the air, goes well below the dew point. Water then condenses out of the surrounding air directly on the cold body, and dew appears on its surface. The dew is nowhere until it appears on the surface; it therefore neither rises nor falls."

There is, however, a third form of dew the importance of which is only now beginning to be realised by the gardener and agriculturist. In 1913, A. T. Lebedev, published in Russian, a study of the significance of water-vapour in the régime of soil and subsoil water. On this point, in which what is known as underground dew is under consideration, the following quotation from a recent work may be of service. While epiphytes are capable of absorbing moisture by the aerial parts of the plant "other plants are obliged to content themselves with the water supplied by their roots. Dew and light rains, in so far as they only moisten the leaves on the surface of the soil, without penetrating the latter, are probably not directly utilised by our common plants. Matters are different with underground dew, which, in the opinion of many authors, may play a somewhat important rôle in the water supply of desert and even steppe plants. But the question of underground dew is too little elucidated from a purely physical point of view, and is in general too debatable to be dealt with in detail, the more so as the source of the water that enters the zone of attraction of the root system is of no importance to the plant."[†]

This subject of internal dew formation, and its importance to the plants growing on sand dunes and shingle beaches, has received a good deal of attention, as the bibliography appended to the work quoted will show. One remark, however, in the foregoing quotation seems at variance with generally received opinion. Are dews and light rain not directly utilised by our common plants? Is it only by their reaching the roots that they are capable of being used for the refreshment and growth of herb and shrub? It is just possible that here we have been jumping at conclusions, and have assumed that the plants benefit thereby. The crux lies in the words "directly utilize." That the plants drink in the dew to any considerable extent is probably an unproved assumption. But that they are benefited by dew and light rain can hardly be disputed. The benefit, however, lies in the aid which these give to the plant in withstanding heat and drought, assisting transpiration, and avoiding wilting. In this respect it does not signify materially whether the dew is in the form of a mist falling on the vegetation or results from radiation and condensation. We have, apparently, not yet come into full possession of all the facts, and the relation of dew to plant life still calls for fuller investigation. *Hilderic Friend.*

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.[*]

XXXV.—The Conquest of Polon.

QUARTERMASTER Buttercup now informed me that as the transport had been ready and waiting for several days, and as we had very little food left, we must start for Theronliang at once. Indeed, I had known that we *must* start so soon as I got back from Kaso; that was to be my last climb. It was now October 22, and we were only rationed up to the middle of the month; the Rice, as already explained, had given out a fortnight ago. If the coolies marched everyday, it would take us just a week to reach Theronliang; and in order to reduce the number of loads, we abandoned some of our equipment; we had not food for more than another ten days, and only half the rations at that, and certainly could not afford to spin out the return journey owing to lack of coolie power. Nor could we risk letting our coolie contingent depart, as they were taking us through to the bridge—four stages. Once we reached Chibaon, we anticipated no trouble, as it is a big village, and many of the inhabitants go down to Sadiya in the cold weather; we ought to be able to pick up coolies there to take us on to Denning. As for the lost seeds, well, the alps were now under deep snow which would not melt until next June. Nothing more was to be hoped for from Kaso. But Polon?

It was a brilliant day again, and if ever the weather looked set fair, surely it did now. We spent the whole day sorting, numbering, and wrapping up bundles of Rhododendron capsules, which were to be carried to Sadiya for treatment, since there was no time to catalogue and pack the seeds here. And while we were engaged on this task, I was rapidly forming a resolution, which was, to make one more effort on Polon. There was much less snow here than on Kaso—the peak was about 2,000 feet lower, besides being nearer to the warm air currents from the Lohit valley. But even so, I might get some of the missing plants on Polon, and more seeds of the best plants. We would start the following day, Buttercup taking the kit down the valley, while I and my two Mishmis went on up the ridge to our old camp. The second night I would sleep at the cave, and in the third day climb Polon; I might even spend a second day on Polon. Then, returning down the other side of the mountain, we would go down the valley by forced marches, and probably overtake Buttercup with his coolies before they reached Theronliang; for I reckoned he would be held up a day at Chibaon and probably another day at the bridge.

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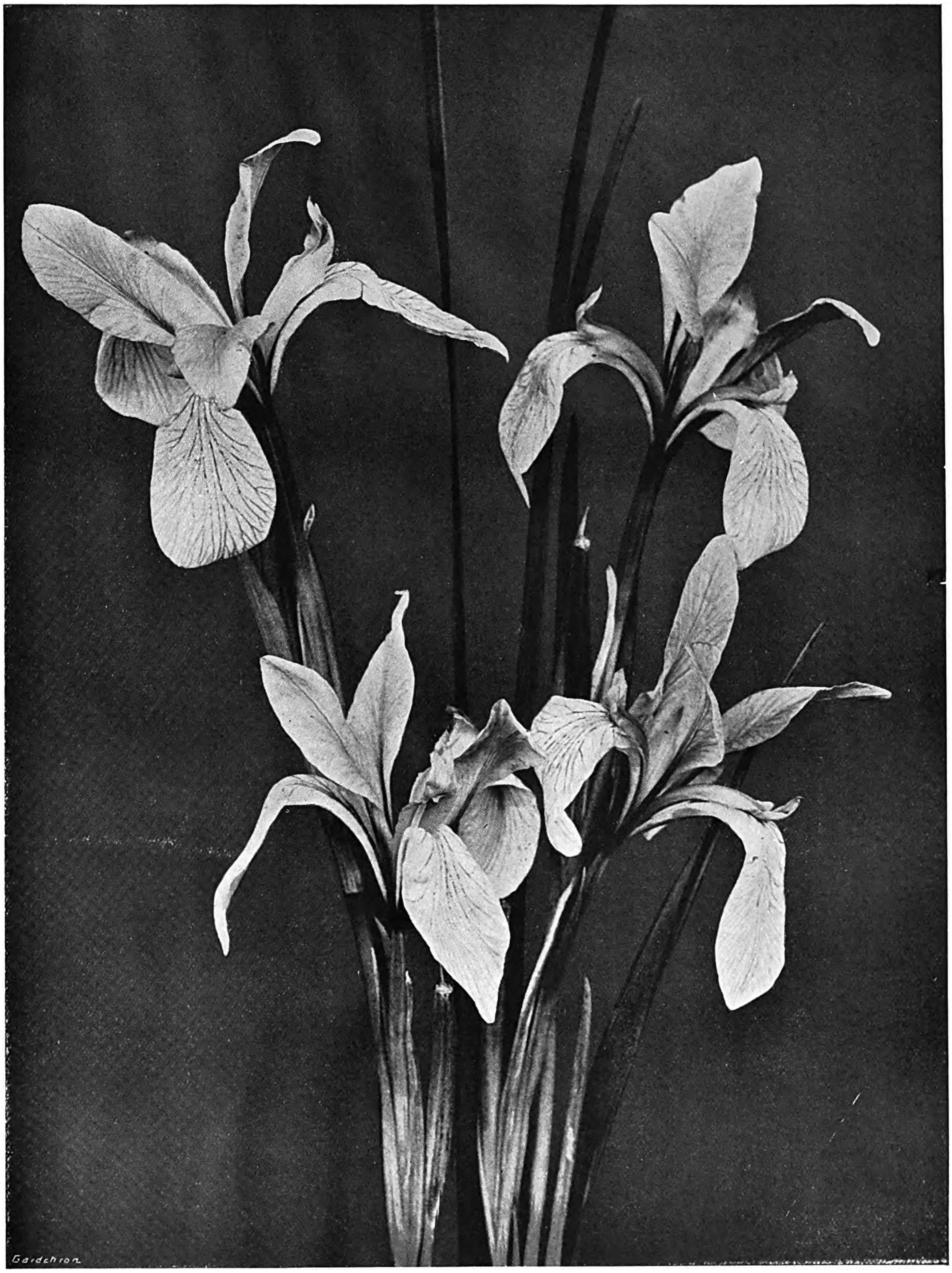
[*] Previous studies appeared in our issues of April 13 (p. 279), June 15 (p. 446), Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71), August 17 (p. 130), September 7 (p. 187), September 14 (p. 207), September 28 (p. 247), October 5 (p. 268), October 12 (p. 288), and November 2 (p. 346).

[*] Reference may be made to *Palestine Explored*, 1908, p. 130; *Rambles in Bible Lands*, by Lang Neil, p. 87; *The Gospel in Nature*, by Dr. McCook, p. 45; the *Encyclopaedia Biblica*, and other works.

[†] *The Plant in Relation to Water*, by N. A. Maximov, 1929, p. 98.

[*] Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 8, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 16, 28; October 12, 26, and November 9, 1929.

Supplement to THE GARDENERS' CHRONICLE.



IRIS ENSATA.

To this plan Buttercup good naturedly agreed, and I knew that I could rely on him to carry out his part of the arrangement. We started in good time next morning, but the sun shone fiercely as we climbed the thousand-foot face, and we were glad to reach the ridge above and get into the shade. Along the ridge I had a job of work, digging up four species of Phaius. Three of them had leaves so similar that I could not tell them apart, but the fourth—a white-flowered plant, was different, the leaves having a peculiar dull metallic look, as though covered with a film of pewter. The brown one I had marked; and by collecting a sufficient number of the other two, I expected to get both the amethyst and the yellow species. I collected also the Pleione, a plant of the vermilion Aeschynanthus, and various Rhododendron and Hedychium seeds.

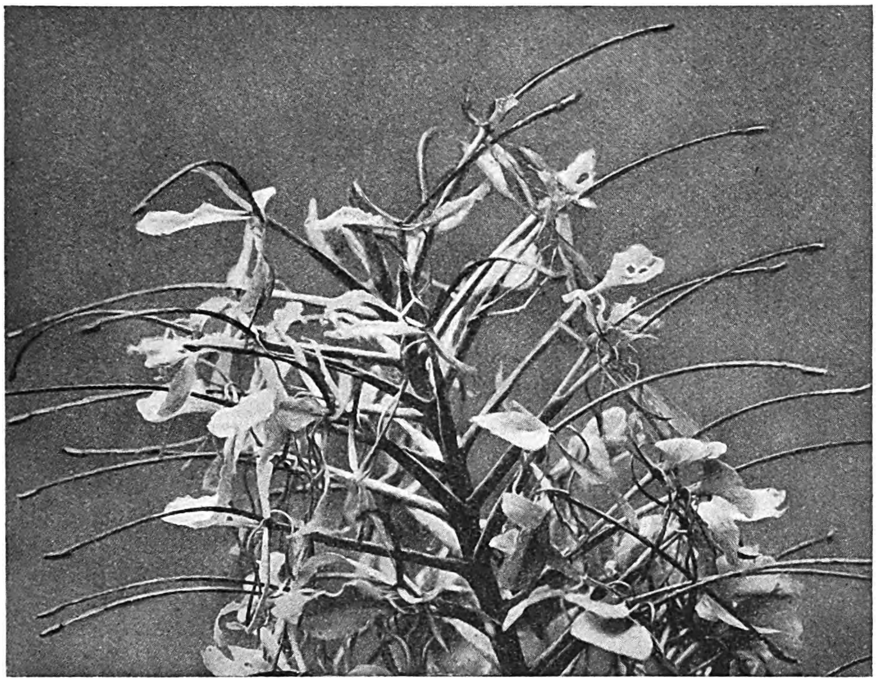


FIG. 188.—HEDYCHIUM SP., K.W. 8,501.

Then we came to the parting of the ways, Buttercup with his coolie corps traversing around the mountain side to Mitonma, while Hubble, the Gam and I went on up the ridge. We reached our late camp at three o'clock. It was a glorious sunny afternoon, and I sat up on the look-out ridge for an hour reading "Moll Flanders." A froth of pale clouds gleamed far away in the south; closer at hand a few wads had laid their heads softly on the frozen tops of the high peaks, as though begging forgiveness for their recent bad behaviour.

The water at this camp was now like stout, without its flavour, and this after three fine days only, so we should have suffered for lack of water had we been in camp here. I sat by a big log fire before turning in, for the first time in months. It was just getting light when I got up. Starting along the ridge before eight o'clock, we made heavy going of the climb, and did not reach the cave until 2.30. The autumn tints along the ridge were very fine, the warm cedar-red of Viburnum, the sharp yellows of the five-pronged Acer and of Rowan, the scarlet of Enkianthus, and the fiery orange of Rhododendron tephropeplum burning hotly against the sombre green of the Fir forest.

Meanwhile clouds had rolled up, and once more the view of Polon from the alpine top was spoilt. This was particularly annoying as I was most anxious to see how deep the snow was. Arrived at the cave, I went off to collect Rhododendron seeds, in the stony glen, where, too, I found a brilliant blue 'Ornata' Gentian on the rocks. Then I dug up some of the ruby-scaled Primula 'bulbs' as an experiment. These 'bulbs,' which are, of course, next year's buds, and only differ from true bulbs in being on, instead of under, the ground, are hard and compact, about as large as Acorns, with long, radiating roots. The bud lies within the crown of the bedraggled dead leaves of the current year, from which also arises the short stem with its cluster of capsules. The capsule differs from the ordinary sausage-shaped parchment capsule of the 'Nivalis' type in being globular and crumbling, a peculiarity it shares, so far as I know, with only two other species, namely P. falcifolia, from Tibet, and P. Agleniana (pink-flowered variety or 'Tea Rose' Primula) from Upper Burma; all three species growing in the very wet mountains of Indo-Himalaya. Having dug up some plants, I cut off the dead leaves, wrapped the buds in dry moss, and within ten days had posted them to England. They were, therefore, less than a month out of the ground; and this is the only way I can conceive of these glorious Primulas ever being seen at home flowering as they flower in the rain-soaked and snow-bound mountains of Indo-Himalaya. For even if they can ever be brought to the flowering stage from seeds—and experience proves how difficult, if not well-nigh impossible, that is—they are certain to perish outright before they are fully developed. The five-flowered plants of this 'Gamboge' Primula for example, and the eight-flowered plants of the 'Tea Rose' Primula, are probably aged six years or thereabouts. P. falcifolia bears only one, or occasionally two flowers. All the afternoon a thin mist was flying up from the valley and the sun was hidden; by nightfall everything was bathed in mist. It looked bad. We were quite comfortable in the cave, warm and dry, but I could not sleep. Every hour I woke up, to see a milk-white veil drawn across the sky; until four o'clock in the morning came. The mist had gone, the stars were shining.

"A fine night, citizens, and all's well!"

In the cold, grey dawn we breakfasted, and then, taking Hubble with me, I set out for the top. Although it was brilliantly fine, the clouds lay thickly in the valley, and as the sun rose, they came rolling up the mountain side; so we climbed fast, collecting seeds as we went along—dwarf Honeysuckle, dwarf Rose, Rhododendron 'Roylei' and, of course, every capsule we saw of the red Primula. We soon reached the ridge, and pushing along towards the summit, found ourselves on sugary snow. Traversing beneath a cliff, I came on scattered plants of the 'Muscarioid' Primula, and fields of the Gamboge 'Nivalis.' A steep climb up a rocky face followed, and we found ourselves on another ridge, making straight for the bare top, in deep snow. Fifteen minutes later, we stood on one of the twin summit peaks, and peeping through the snow were a few clumps of the dwarf 'Anthopogon' Rhododendron. By digging like a badger. I excavated a dozen or so plants, and obtained a few capsules of this beautiful species, whose flowers rival those of R. Williamsianum in their clarity of colour. We descended by a different route, and collected the scarlet, pear-drop fruits of a dwarf Barberry. There were some fine clumps of the blue Gentian here, and I fully expected to find a Meconopsis on the meadow-clad slopes; but I had no luck. The 'Gamboge' Primula grew in wide drifts everywhere—the slopes must have been enveloped in cloth-of-gold in June. The 'Muscarioid' was far less common.

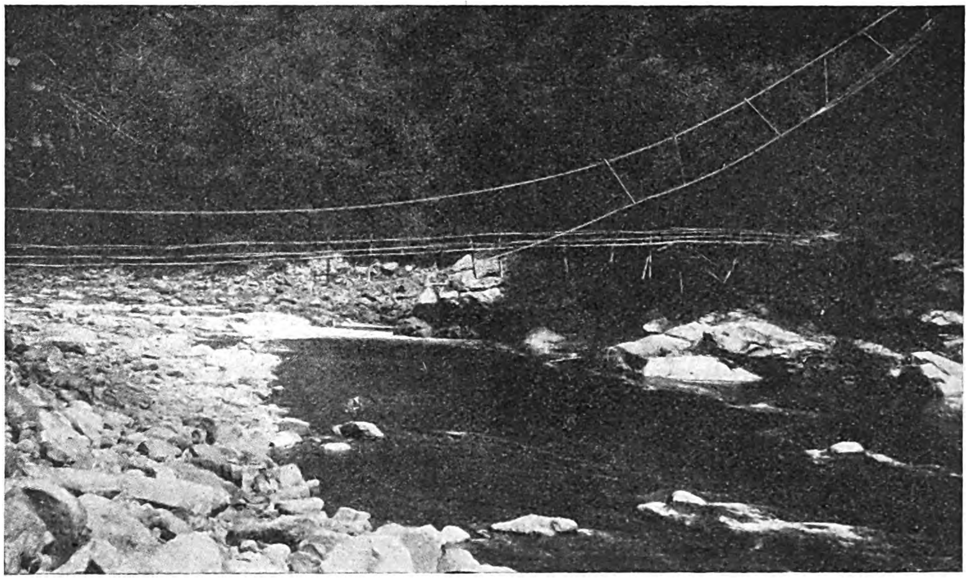


FIG. 189.—THE DELEI VALLEY BRIDGE.

By this time the weather had grown so thick that I could not see where I was going and had to sense my direction. I hit off the ridge, but unluckily, not at the right point, and we did not know whether we were above or below the path, and for the moment we were completely lost. To make matters worse, it now began to snow furiously. We plunged down a gulley, but having descended a thousand feet into the forest, we realised that we were diverging from the path, and must go back on our tracks to the ridge, and start afresh. It was a horrid climb, the rocks now cold and slippery, and the snow blowing in our faces. However, we got back to the ridge; and the mist having thinned a little, we presently made out the path away to our right. Reaching it was more difficult, but we got there at last, thankful not to have been involved in a worse mess. Half-an-hour later we reached the cave, having been nine hours on Polon.

I was quite prepared to tackle the mountain again the following day, but it drizzled all night, and next morning (October 26) the Mishmi Hills were again hidden in the mist, and snow was falling on Polon. I had shot my bolt; there was nothing for it but to return by forced marches. Anyhow, we had got another Primula, the best dwarf Rhododendron, a Barberry, and ample seeds of other good plants.

Immediately after breakfast, we started down the mountain, collecting all the way. In three hours we reached our forest camp, and halted for lunch. Then on down the ridge to Mitonma, where we did not stop a minute, or the Mishmis might have been tempted to murder me. A toilsome march into the deep ravine and up the other side, brought us to a village at dusk; and here we halted for the night, dead beat. *F. Kingdon Ward.*

SOME CHOICE NEW ZEALAND SHRUBS.

Entelea arborescens.

Entelea arborescens, which is probably better known to New Zealanders by the Maori name of Whau, is a comparatively rare, half-hardy plant of great decorative value. Belonging to the Order Tiliaceae, it represents a monotypic genus which is confined to New Zealand, being found in the northern parts of the country and extending south to the Marlborough Sounds in the extreme north-east of the South Island.

It is not a common plant in the wild state, and added to the fact of its rare and local distribution is the fondness of domestic stock and deer for its foliage, consequently the Whau is fast becoming exterminated, except in the uninhabited islets and other inaccessible places, Being a lover of the semi-shade, it is most frequently met with by the edge of forest clearings, growing on the outskirts of lowland forests, or fringing the sea-coast in specially sheltered places.

A small, evergreen tree of tropical aspect, growing to so much as twenty feet in height, bearing bright green, Mulberry-like leaves, four to eight inches long, with toothed edges, and numerous clusters of attractive white flowers, each of which has a conspicuous bunch of yellow stamens, giving the appearance of a yellow eye in the distance, it rarely fails to hold the attention of the most unappreciative observer The beautiful white flowers, each over one inch in diameter, with five delicately crumpled petals, are very abundantly produced in large, terminal and axillary cymes during early summer, that is, from November to January in New Zealand. During the flowering period, both flowers and seed capsules may be found on the same plant. The seed capsules have a very formidable appearance, being provided with stout, rigid bristles or spikes. They are dark brown in colour, and have something of the appearance of a well-armed Chestnut. The young growths, petioles and inflorescences are densely clothed with a covering of soft, spreading hairs.

The tree is comparatively small, rarely exceeding twenty feet in height, but in exposed places it often assumes a shrubby growth-form, in which case six to ten feet is the maximum height attained. The wood is the lightest produced by any New Zealand plant, having about half the specific gravity of cork. The Maoris, recognising the extreme lightness and buoyancy of the wood, used it for the construction of small rafts and floats for their fishing nets.

The Whau is somewhat difficult to raise from cuttings because of the thick mucilaginous sap which exudes rapidly from the severed portion. If this is carefully cleaned off, cuttings taken in early spring will root if inserted around the edge of a six-inch pot full of sandy loam, and placed under a bell-glass in a temperature of 60°. Seeds usually germinate freely, and although young plants are often delicate, they grow rapidly after having passed through the seedling stage. The soft, Begonia-like foliage is very susceptible to frost, and therefore the Whau will respond to treatment similar to that given its near relative, Sparmannia africana.

Ixerba brexioides.

Ixerba brexioides is a very fine tree which has been compared with some of the species of Arbutus for usefulness as a garden plant, because of its graceful habit and pleasing foliage, which make a well-grown specimen a superb feature in any garden, even when the conspicuous clusters of white flowers are not in evidence. It is a monotypic member of the Saxifragaceae, being well-known throughout New Zealand by its Maori name of Tawari. The Tawari has never been a common plant in the wild state, being confined to the northern portion of the North Island, where it is chiefly to be found in mountain woods, attaining its maximum dimensions between sea-level and 2,000 feet. It has been found growing so high up as 3,200 feet, but at that height it becomes stunted in growth, losing much of its attractive appearance. A handsome tree ranging from twenty to fifty feet in height, it bears glossy, dark green, lanceolate leaves four to six inches long, and during November and December it produces a plentiful display of large, waxy-white flowers one-and-a-half inch in diameter, with conspicuous crimson anthers.

This is one of the few plants for whose flowers the Maoris had a special name. They knew these flowers as the Whakou. In pre-European days they followed the almost universal Polynesian custom of weaving garlands of flowers for personal adornment, etc., when celebrating festivals and gala days. Whakou was one of the most popular flowers for this purpose, and garlands made of them were in great demand.

The Tawari is not difficult to cultivate, and may be propagated from either cuttings or seeds. It should be planted in good deep soil, well protected from frost and provided with slight shade. When thoroughly established, it will prove to be one of the gems of any collection.

Clianthus puniceus.

Clianthus puniceus is an easy first as the most gorgeous flowering shrub that New Zealand has produced. It forms a marked contrast to the predominating yellows, whites and greens which go to make the greater portion of New Zealand's indigenous shrubs. This contrast is so very noticeable that various theories have been put forward from time to time to account for the presence in New Zealand of this brilliant member of the Leguminosae.

For many years it was supposed that the Maoris must have brought the plant from some of the neighbouring sub-tropical islands, but we are pleased to know that there is no foundation for this statement, and that Clianthus is a true New Zealander. Evidently it has always been rather a rare plant in New Zealand and seems to have been confined to the north-east of the Dominion. It is now a well-known truth that many New Zealand plants are very limited in their distribution, several, in fact, being confined to one special area, therefore the fact that the Clianthus is of local distribution goes to prove nothing. It was noted by the famous botanists Banks and Solander when they visited the country with Captain Cook in 1769. Solander took specimens to England, where the plant was named, the genus Clianthus being created to receive it. The exact locality from which Solander's material came is apparently rather doubtful, but it is now supposed to have been collected in the East Cape district, where the plant has been known for many years to exist in a semi-wild state, but, unfortunately, is now practically, if not quite, extinct.

Colenso, who arrived in New Zealand in 1834, tells us that he first saw this striking plant blossoming in the missionaries' gardens at the Bay of Islands, the following year, and afterwards he saw it growing apparently in the natural state in some small islands in the Bay of Islands. At the same time, he remarks that during his many years of travel in the North Island he never met with it elsewhere in the wild state, although it was frequently seen adorning Maori villages on the east coast. This early testimony seems to prove that even at that time it was practically extinct, except where it was protected by the Maori people. It would thus appear that this singular flowering shrub has been distributed and probably preserved from extinction by the Maoris, who evidently grew it near their villages because they took a keen delight in the brilliancy of its curious crimson flowers.

It has never been reported from any other country, so evidently was very rare when the Maoris came to New Zealand some five or six centuries ago, and being captivated with the brilliant crimson flowers they cultivated the plant which, fortunately, is very accommodating in its needs. It was probably the only plant of no economic value grown by those primitive people. Even at the present time a few straggling plants may yet be found marking the site of some deserted village. Cattle and deer are all too fond of luscious foliage, and consequently the time is not far distant when this plant will be found only in the cultivated state. The Maoris recognise the flower by its sickle-shaped keel which is narrowed into a long beak, this they termed "Kowhai-ngutu-kaka"—that is, the Kowhai of the Kaka beak, the Kowhai tree being the yellow-flowered Sophora tetraptera. Throughout New Zealand the Clianthus is known as the Kaka Beak or Red Kowhai.

There is an old legend that when the first plants were placed on the British market about 1832, they were rapidly disposed of at £5 a plant.

Clianthus puniceus assumes the growth-form of a drooping herbaceous undershrub varying from three to six feet in height, with prostrate or reclining branches which are more or less covered with a silky down. The branches when in the young state are very succulent, indeed, almost herbaceous. The pinnate leaves are eight or more inches in length, with alternate leaflets in from ten to fourteen pairs. The numerous, bright scarlet flowers are profusely borne in long, pendulous racemes in the axils of the leaves, and, therefore, the plant should be grown on a bank if one is to get the real benefit of its beauty. The fine creamy-white variety, var. alba, which is fairly common under cultivation, comes true from seeds, and consequently there are several good pink forms on the market, all of which are worthy of a place in the garden. They are all comparatively hardy and will withstand up to about 16° of frost, without any ill-effects, but they should be sheltered from anything harder. They present no difficult problems of cultivation, and will flourish in good deep soil in a sunny place, producing a profuson of blossom year after year without fail.

In districts where it is not hardy, Clianthus puniceus may be grown against a sunny wall where some protection can be given during the winter season, or it may be effectively grown in tubs under glass, but it rarely flowers if so treated unless it receives plenty of sun. *A. W. Anderson, Botanic Gardens, Dunedin, N.Z.*

A DIPTEROUS PEST OF BERBERIS AND COTONEASTER SPECIES.

PHAGOCARPUS PERMUNDUS, HARRIS.

DURING the latter part of September, 1928, my attention was drawn to the presence of shrivelled berries on Berberis sibirica by Mr. B. O. Mulligan, Botanical Assistant at the R.H.S. Laboratory, Wisley. On examination, it was found that nearly all the shrivelled berries contained a dipterous larva. A survey of the collection of berried shrubs in the R.H.S. Gardens revealed the presence of similar larvae in the fruits of ten species of Berberis (Fig.190), and two species of Cotoneaster, when so many as eighty per cent. of the fruits on several of these plants were tunnelled by the larvae of Phagocarpus permundus, Harris (Anomoea antica, Weidem.). Larvae collected during the last week in September and the first week in October, 1928, pupated at once, emerging as adult flies from May 18 to 28, 1929. The fly belongs to the family Trypaneidae (Trypetidae), members of which are commonly known as "Fruit Flies." Insects belonging to this family have an extensive cosmopolitan distribution, and to it belong such well-known and destructive pests as the Mediterranean and Cherry Fruit Flies and the Celery and Parsnip Leaf-Miner.

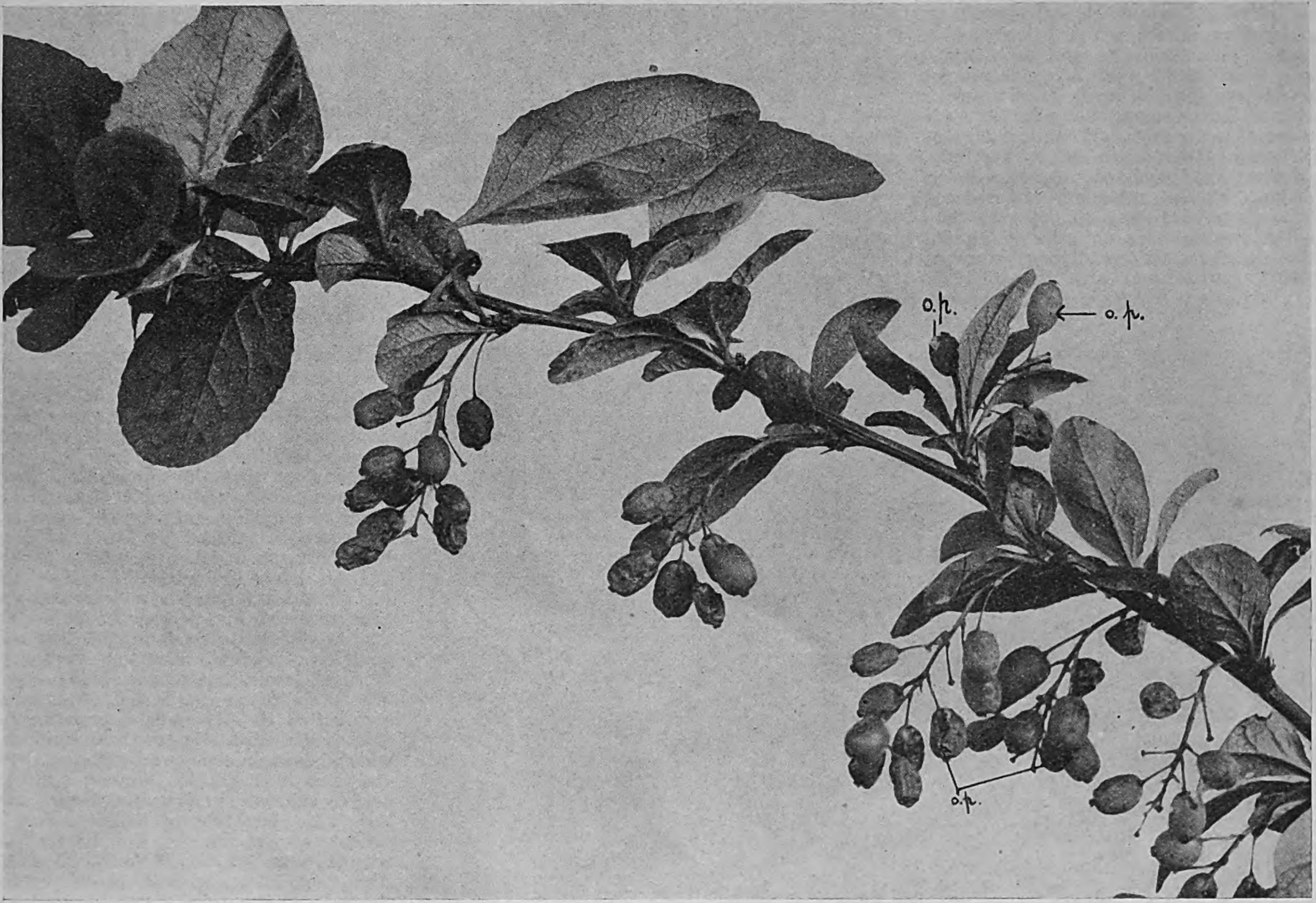


FIG. 190.—BERBERIS KOREANA.

Showing shrivelled berries containing larvae of Phagocarpus permundus and oviposition punctures. (o. p.).

Mr. F. W. Edwards, M.A., of the Natural History Museum at South Kensington, to whom I am indebted for determining the species, informs me that he received a single specimen of the fly taken by Mr. D. E. Kimmins, at Richmond, Surrey, in July, 1929. The only British record was made by Harris[*] in 1776.

DISTRIBUTION.

The British records are scanty and confined to two counties, viz., (i) Kent, in 1776, by Harris, who remarks (*loc. cit.*): "This insect is very scarce, it was found on a leaf near Dartford in Kent"; and (ii) Surrey, by Kimmins, at Richmond, in 1929, and the author, at Wisley, in 1928. One of the recorded continental hosts of this species is Whitethorn, Crataegus Oxyacantha, a statement which may lead one to suppose that this species may have a far wider distribution in this country than the paucity of records suggests. Lindner[*] gives middle and northern Europe and China (Szechuen Province).

HOST PLANTS.

Lindner (*loc. cit.*), quoting von Heyden and Perris, states that the larvae are found in the fruits of Crataegus Oxyacantha, while Handlirsch is stated to have found them in the fruits of Cotoneaster tomentosa. Boie[†] suspects the larvae to feed in the fruits of Pyrus Aucuparia. The recorded host plants at Wisley are confined to two genera, Berberis and Cotoneaster. Among the former, larvae have been taken in the fruits of B. canadensis, B. concinna, B. koreana (Fig. 190), B. Lycium, B. morrisonensis, B. orthobotrys, B. sibirica, B. Thunbergii, B. Vilmorinii and B. virescens, and among the latter, C. divaricata and C. frigida.

DESCRIPTIONS.

The egg has not been discovered as yet in this country. The larva is fairly stout, legless, cream-coloured, tapering towards the anterior end where there is vestigial head. The mouth-parts are reduced to a pair of vertically-moving, chitinous hooks. The anterior spiracles are many-lobed, while the posterior spiracles are provided with three simple slits. There is a pair of rounded anal tubercles. The fully-grown larva is 6 mm. long.

The puparium (Fig. 192) is a firm, oval, corneous case enclosing the pupa. Its colour ranges from cinnamon-brown through shades of brown to light brown, often changing to ivory-white prior to and after the emergence of the adult. It is slightly flattened dorso-ventrally, narrowing sharply both anteriorly and posteriorly. The dividing lines are fairly prominent, allowing nine segments to be seen. The anterior spiracles are prominent and the posterior spiracles are retracted and less prominent. The length is 3½ mm. to 4 mm. and half as broad.

The adult (Fig. 192) has conspicuously-marbled wings with a wing expanse of 9·5 mm. and a body length of 4 mm. The head is clay-yellow, with the upper part brownish and the forehead flat. The antennae are yellowish-brown and three-segmented. The eyes of the living insect are bright green and iridescent. The thorax and scutellum are rusty-yellow to light brownish-red. The back, with the exception of the lateral region and a transverse strip in front of the scutellum, which are reddish-brown, is dusted ashy-grey with three longitudinal lines, the centre one being broader but less distinct. The legs are yellow and moderately covered with hairs. The wings are conspicuously ornamented, especially in the basal area, the top of which is dark brown; there runs from the outer edge of the wing a brown, partly complete loop to the back of the centre of the wing. The abdomen is dark brown with the exception of the first segment, which is paler, and the whole lies densely bristled. The female is provided with an ovipositor by means of which she deposits the egg beneath the skin of the fruit.

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[*] *An Exposition of English Insects*, 1776, p. 74, tab. XXI.

[*] *Die Fliegen der Palaeoarktischen Region*, 1927, part 17, pp. 94-95.

[†] *Stett. Ent. Zeitschr.*, Vol. VIII, p. 336.

LIFE HISTORY.

The insect is single-brooded. The female fly tends to make numerous punctures in the fruits by means of her ovipositor, but may only deposit one egg in a single fruit. This frequent puncturing of fruits without oviposition is characteristic of many species of "Fruit Flies." The average number of punctures per berry in Berberis canadensis was 5·36, with a maximum of 10. Only a single larva has been found in any one fruit. The larvae feed on the fleshy pulp or pericarp and may eat into the seeds (Fig. 191). They may be found in the fruits from the beginning of September to mid-October, when they are fully grown. They leave the fruit and enter the soil to a depth of from four to eight inches around the infested bush where pupation takes place. Lindner (*loc. cit.*), quoting Perris, states that the larvae pupate in the fruits. Handlirsch is reported to state that they migrate into the soil. Our observations bear out the latter statement. The pupa is enclosed in a hard, corneous puparium which is highly resistant to the effect of soil insecticides having naphthalene as a base. If infested berries are gathered for seed purposes and kept in boxes, great numbers of puparia are found among the pulp and seeds in the course of a few days. When the infested sample is washed to remove the rotting pulp, the puparia float and may be scooped off with the surface scum. If the seeds are not washed so that the pulp is allowed to dry and then removed by sieving, the puparia are found among the seeds (Fig. 192) and may be unwittingly packeted with them and dispatched to customers, who may overlook their presence.

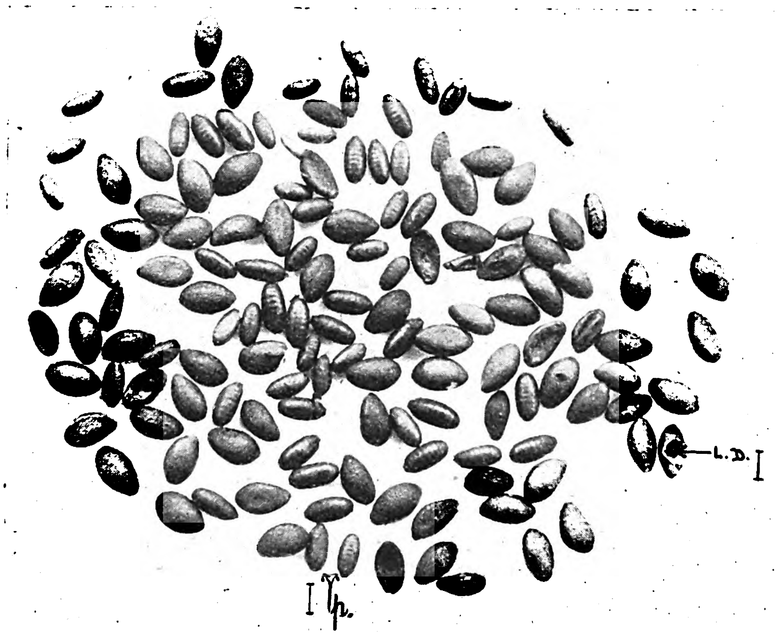

FIG. 191.—SEEDS OF BERBERIS THUNBERGII.
Showing clean seeds; a seed damaged by larva of Phagocarpus (L. D.), and puparia (p.).

The adult flies emerge under natural conditions at the end of June and throughout July.

PREVENTIVE AND REMEDIAL MEASURES.

(1) The use of a deterrent spray, *e.g.*, paraffin emulsion, applied to the developing berries during August will tend to prevent egg deposition.

(2) All shoots bearing numbers of shrivelled berries should be removed and destroyed by fire by the end of September.

(3) Handpicking may be resorted to where the tunnelled berries are few in number.

(4) The removal of surface soil around infested bushes to a depth of at least nine inches should be carried out in December and buried to a depth of two feet, covering the puparia-infested soil with a layer of unslaked lime or watering with cresylic acid emulsion.

(5) The thorough and careful examination of all seed samples and the removal of puparia from them by steeping in water when the puparia and damaged seeds float and may be scooped off with a ladle.

Poison baits and chemically-baited traps are being tried out for this pest, because of the success obtained in the control of many closely allied species of "Fruit Flies" by these methods.

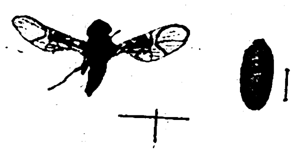

FIG. 192.—PHAGOCARPUS PERMUNDUS ♀ AND PUPARIUM.

My best thanks are due to Mr. Mulligan for directing my attention to the initial attack in 1928, to Mr. Edwards for determining the species, and to Mr. F. C. Brown, of Wisley, for taking the photographs illustrating this article. *G. Fox Wilson, R.H.S. Laboratory, Wisley, Surrey.*

HOME CORRESPONDENCE.

A Large Pumpkin.—A Pumpkin cut here in October turned the scale at nearly five-and-a-half stones (76 lbs., to be accurate), with a girth of five-and-a-half feet, establishing a record for this garden. The extra heat of this summer and a plentiful supply of rain in August may have assisted the fruit in attaining this huge size. Pumpkins have been grown here for the past ten years, but the heaviest hitherto produced was just under 50 lbs. I am not versed in Pumpkin weights, but fancy that fruits upwards of 90 lbs. have been grown in this country, although probably in the warmer south. It is a little surprising that the Pumpkin is not more commonly cultivated, as a change from the Vegetable Marrow. Perhaps one reason against growing it may be summed up in the phrase, "one plant, one Pumpkin"; whereas a Marrow plant usually bears several fruits. This summer we were more fortunate, since from the two plants grown, four other fruits were cut of a manageable size, averaging about 20 lbs. apiece. Size has its disadvantages. The monster one was deposited by the gardener on the scullery floor. The cook asked concernedly what she had to do with it. "Oh, just put it in the larder for the time being," was the reply. "But we can't lift it," she exclaimed. A Pumpkin has more quality in its "flesh" than a Marrow, and can be used (in the culinary sense) either as a vegetable or a fruit. Without resorting to the elaborate ways of dealing with it followed in America, it may make quite a nice filling for a pie when cut up into small pieces and flavoured with Lemon. I am also told by those who have experimented that it makes a better jam than Vegetable Marrow. Pumpkin plants are treated here in exactly the same way as Marrows, and have never missed a summer without giving some return; usually, the whole strength of the plant is concentrated in one fruit. *J. P. Blaithwaite, Wigton, Cumberland.*

Bees and Fruits.—In reply to *F. Akers* (p. 370), it is not possible to state for certain whether in a normal year wasps would have attacked the honey bees, or kept them away from the fruits. Hornets will attack wasps on fruits, and have been seen to kill them and throw the bodies off! It is, however, safe to state that if the wasps had shown signs of molesting the bees the latter would in all probability have got the worst of the argument. *C. Nicholson, Tresillian, Cornwall.*

Helianthemum vulgare var. Mrs. Earle.—In the interesting article on "Plant Variations," by Mr. A. Hosking (p. 323), the author states "Helianthemum vulgare var. Mrs. Earle, double red, often gives a double, yellow-flowered sport called Cumberland Belle." I would like to point out that the name Mrs. Earle, given so frequently to the double crimson Helianthemum, is a modern title applied to it because it had been mentioned by Mrs. Earle in one of her books, as a desirable plant, of which she did not know the name. I believe that lady distributed it fairly freely to friends, and it has thus received her name. It is really an old double variety to be found in lists and works of reference as H. venustum var. plenum, or H. amabile var. flore pleno. Much as one would like to do honour to Mrs. Earle, it is, I think, a pity that the old and proper name should be discarded. With reference to Cumberland Belle, which has been sent out by Messrs. Stormonth and Son, of Kirkbride, Cumberland, it produces double crimson, yellow and bronze flowers on the same plant. A couple of sports from H. venustum var. plenum (Mrs. Earle) originated with the late Mr. P. Hill Normand, of Whitehill, Aberdour, Fife, and were shown by him at a show in Edinburgh, a number of years ago, when Mr. Normand and I discussed them. They were named Jubilee, which is yellow, and Old Gold, bronze, which I see listed as Bronze Jubilee. Rather curiously, although I have grown these for years, none of the three has ever sported. I know nothing about Cumberland Belle in this respect, but it is quite an interesting Helianthemum. *S. Arnott.*

The Need of Education for Gardeners.—I have read with great interest Mr. K. Bell's letter in *The Gardeners' Chronicle* of October 26, and heartily agree with all he writes, but when I find a nobleman advertising for a really clever, first-class head gardener and offering to pay £2 10s. per week, I wonder whether education is valued by an employer. Even making allowance for his house, etc., the remuneration is equal to £4 a week, but there is little possibility of advancement, no retiring pension, and no insurance against unemployment. From personal experience, I know that a head gardener's hours average at least eighty per week, and he has to be as clever in his profession (to be successful) as a lawyer; but can one imagine a lawyer's fee as 1s. an hour! Is it to be wondered then that there is a lack of men who really spend their evenings studying for our profession, especially when a failure with any fancied crop may bring him a month's notice to quit ? With all due respect to Mr. Bell's advice, I think if he were to institute classes for employers where they might learn how a gardener's wife may make ends meet, he would be doing our old profession a heap of good. I also wonder how many of our present day brilliant gardeners who show their skill on the show tables, have, or have had, the time to study up for the N.D.H.; and if they passed the examinations what, if any, financial benefit would they gain ? Empty honours are not very satisfying. *H. Tullett.*

——In your issue of October 26, there appeared an article on the above subject by Mr. M. G. Kennedy-Bell. The time is opportune for such a discussion, when so much is written and said about the losses incurred by those who are engaged in the cultivation of the land both at home and abroad. It is pleasing to see that Mr. William Cuthbertson, with his wide experience of horticultural work, has taken up the mater (p. 371), and it is to be hoped that others with like experience who have given some thought to horticultural education, will come forward and endeavour to rouse all concerned to the need for sound technical training in gardening. Mr. Kennedy-Bell points the way to the young gardener, showing how he can improve his position by devoting his spare time to the study of botany, chemistry, etc.—but how is he to obtain such instruction? In most cases the young gardener lives remote from the large centres where such classes are available, and even where classes in botany and chemistry are within easy reach, the subjects are frequently not taught in such a way as will benefit greatly the young practical gardener. It is true there are some classes available, and, where possible, young gardeners should take full advantage of them. The guidance of an experienced teacher is very necessary in the study of such subjects as botany, geology, bacteriology, entomology, etc. The young gardener is frequently blamed for his apathy towards his studies, but is the fault altogether his ? In many cases the way is not pointed out to him, the head gardener having little interest in him beyond getting his day's work done. There are many exceptions to this. The present writer has known a head gardener attend a class with his six young men, and if he noticed one absent he wanted to know the reason for his absence. If we had more head gardeners of that type we would have more real students of gardening, and the profession would very soon be raised to a much higher level. There are many instructors of gardening nowadays, but do the selection committees always appoint the most suitable men for the posts ? And are they given a free hand to conduct their work in the best interests of the gardener ? In some cases too much emphasis is laid on purely academic qualifications, with the result that the instructor is out of touch with the little practical details which are so essential to interest the young gardener in his studies. I do not for one moment belittle the very highest academic qualifications in a horticultural instructor, but if this is not combined with practical experience, the results are often very disappointing. The competition with picture houses, dance halls, etc., is very great at the present time, but when nature is properly interpreted and attractively presented, as it can be in the hands of a capable horticultural instructor, it can hold its own with such counter attractions, and it has the great advantage of leading the student to a better position in after life. Much has been written for and against examinations, but there must be some kind of test of the student's knowledge of any subject, and if an examination at the end of a course is an incentive to the student to apply himself to his studies, it will have served its purpose, whether he passes or not; although he may not gain a certificate or a prize, he will probably have obtained a fuller knowledge of the subject than he would otherwise have had if the aim of the examination had not always been before him. Although the large private gardens have almost all been given up, public parks and gardens have come into existence all over the country, and, through them, the need for well-trained gardeners remains. There are also many posts, both at home and abroad, open to men who have had a thorough training in horticultural work, and who can specialise in one of its many branches; they have the groundwork of practical experience which is the great asset to the specialist. Much has been done during the past thirty years in providing educational facilities for young gardeners, and they should respond by attending the classes wherever possible, both in the principles underlying their practical work, and in the sciences allied to gardening. Where no classes are available they are generally started if sufficient students are ready to take advantage of them. The young gardener who diligently applies himself to his studies will ultimately get his reward. He should not be discouraged if promotion does not come at once, but should employ the time for further study, and he will then be the better equipped to carry out the responsible duties when his chance arrives. In the meantime, a well educated gardener is almost always held in higher esteem by his employers, and he will also have the satisfaction of knowing that he is assisting in raising his profession to a higher level. The writer has spent over twelve years in evening classes, and can truthfully state that it was the most interesting part of his training. *William Good, Lecturer in Horticulture, West of Scotland Agricultural College, Glasgow.*

Gentiana sino-ornata.—I hardly agree with Mr. S. Arnott (p. 352) when he states that so much has been written in favour of this gem of an alpine that he refrains from writing more. I feel that not nearly enough has been written in its favour, and while contemporaries question its constitution, there will be no encouragement of its increase in popularity. I must, however, endorse his statements that it is such a precious plant that anything affecting its well-being in our gardens is of more than usual importance. I have two batches, one a perfect batch growing in a position where it has no sun whatever, the other planted where it has no protection from the sun, admittedly a poor position. Now it may be interesting to know that where the Gentian is planted in full sun a fungus appeared on the plants, and had a deteriorating effect upon them. The reason for its appearance was, I think, faulty planting; I feel confident that, given its right quarters, namely, a cool and shaded root-run with plenty of peat and sand, G. sino-ornata will resist all disease and thrive. *S. Southgate, Cornhill-on-Tweed, Northumberland.*

Vegetables and Fruits in use in the Eighteenth Century.—Maude Robinson may be pleased to have the following observations on her interesting contribution on the above subject which appeared in *Gard. Chron.*, of November 2, p. 349. Skirrets and Rocamboles are still listed; the former is Sium Sisarum, rather like Salsify, and the latter a Garlic, Allium Scorodoprasum. Finocks is doubtless Finocchio, Fennel, as eaten in Italy. Lazaroles is a corrupt form of the Italian for Medlars. Purslane is also grown nowadays—Portulaca oleracea. *William Lawrence.*

Plant Life and Length of Day.—It was extremely interesting to read your leading article on this subject in the issue for November 2, and although my copy of the R.H.S. *Journal* containing the report of Mr. Tincker's observations has not yet come to hand, it will undoubtedly prove of more than passing interest to most growers. The particular reference in your article as to Chrysanthemums being apparently short-day plants, opens up a question which has occupied the attention of growers for some considerable time, as it is a well-known fact that many varieties of early-flowering Chrysanthemums will open their flowers at least a month earlier in Scotland than they do in the south, although grown under what would appear to be identical conditions otherwise. For instance, with a number of the "Masse" family or group of early-flowering Chrysanthemums, it has been proved by personal experience that in most parts of Scotland there is no difficulty in getting these to flower in time for mid- and the end of August shows, while in the county of Oxfordshire it is nearer the end of September before they are showing colour at all. A friend of mine resident in south Wales, was on a visit to Scotland this year, early in September, and was agreeably surprised to find most of our early-flowering Chrysanthemums in full flower, some of them, indeed, past their first flush of bloom, and he assured me that in and around Swansea none of these varieties was in anything like so advanced a stage, nor was it usual to find them so at the beginning of September. It is also, I think, well-known that in Scotland we have a longer day during the summer months—so much as two to three hours more daylight—and this has been advanced repeatedly to account for the fact that early-flowering Chrysanthemums come into flower so much earlier, but if it is now proved by Mr. Tincker that these are, in reality, "short-day" plants, some other reason will have to be found to explain the matter. I would submit, however, that it is not altogether a question of length of daylight, but a question of the intensity of the light, and anyone who has experienced a really dry period in the south may agree that after six or eight hours strong sunshine most Chrysanthemum plants will be drooping unless supplied with moisture; while in Scotland it is hardly ever necessary to apply water after the plants are established, except in the form of diluted liquid manure. Under these more favourable conditions, and with the extended period of daylight, the plants grow steadily without a check, such as the shorter but more intense sunlight experienced in the south is almost bound to give them, with the results already stated. *A. T. Harrison.*

Calanthes with Flowers and Foliage.—I do not think it is usual for Calanthes to flower while their foliage is almost perfect, but I had the pleasure of seeing a house of these plants under the charge of Mr. T. H. Heron, gardener to I. Haris, Esq., Brackenburgh Towers, Cumberland, all in full flower with almost perfect foliage, and in many cases the leaves were deep green. Some plants of the C. Veitchii section were showing signs of faded foliage, but the strongest bulbs were in fine leafage. This is the first time during a very long gardening career that I have seen Calanthes so flowered. Perhaps other gardeners will state whether they have experienced this combination of flowers and foliage on deciduous Calanthes. *J. C.*

Lonicera nitida.—The sight of an old colleague's name at the foot of a note (p.391) cannot fail to inspire a desire for friendly controversy. Here, in my garden, with hedges of Yew, Hornbeam, Tamarisk, Prunus Pissardi, and all beautiful, easily the best are the hedges, in all some hundreds of yards in length, of Lonicera nitida. It is very pleasant to learn that there are some things which they cannot grow at Wisley—that plant paradise. May I suggest that a liberal dressing of farmyard manure repeated annually for a year or two might help this beautiful plant to hold its own even among the innumerable beauties of the garden at Wisley. Lime L. nitida certainly does not want. It browns a little where it is exposed, and where the exposure is severe it will not do well. A friend who, on my advice, planted it in a Cambridge garden, complained sadly that it would not withstand the polar breezes which made Cambridge such a bracing place in winter. I think it is the dry top soil to which Mr. Chittenden refers that L. nitida abhors. Here it grows in lightish soil in one part of the garden and in heavy ground with a clay subsoil in another part. It is equally happy with either. The severity of last winter left our plants unscathed and serene, and that in the climate of the neighbourhood of Oxford which, although suaver than the climate of Cambridge, has rigours which are unknown to the dwellers at Wisley. No, no, we cannot have aspersions cast on our favourites; my advice is, give it plenty of farmyard manure, and mulch the plant in summer. I advise this with very little confidence, for I have done neither, but, nevertheless, I think the advice worth giving because our soil is old pasture, very rich in all the known and unknown things which conspire to achieve that mystery which we call soil. *F. W. Keeble.*

SOCIETIES.

ROYAL HORTICULTURAL.

November 19.—This fortnightly show, which was held in the Royal Horticultural Hall, Vincent Square, Westminster, was very bright for the season, and of a miscellaneous character. There were several interesting collections of good Orchids, and the Committee recommended one First Class Certificate and four Awards of Merit to novelties. Chrysanthemums were the chief floral feature of the show, while Nepenthes, winter-flowering Begonias and Carnations of merit were also shown. An unusual feature of the show was the vases of Roses which Mr. C. Engelmann had brought from the U.S.A. Two of the varieties and three Chrysanthemums were recommended by the Floral Committee for Awards of Merit. The Walnut competition was an immense success and illustrated the number and diversity of the varieties grown in this country. The Fruit and Vegetable Committee recommended an Award of Merit to a new dessert Apple. There were the usual exhibits of paintings and garden sundries.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Sec.), Sir Frederick Moore, Mr. Lionel de Rothschild, Colonel Stephenson Clarke, Mr. Fred J. Hanbury, Mr. J. Wilson Potter, Mr. Richard G. Thwaites, Mr. R. Ashton, Mr. J. Cowan, Mr. T. Armstrong, Mr. A. McBean, Mr. J. E. Shill, Mr. Fred K. Sander, Mr. Charles H. Curtis, Mr. H. G. Alexander, Mr. A. Dye, Mr. S. Flory and Mr. H. H. Smith.

First Class Certificate.

Miltonia pulchra var. Lyoth (*M. William Pitt* × *M. Lyceana*).—A very fine hybrid of glowing colour. The wide sepals and petals are rich crimson, with very narrow margins of rose on the latter and on the the tips of the former. Lip very broad, rich crimson, with a light reddish-brown mask that is edged with pale mauve. Shown by Messrs. Charlesworth and Co.

Awards of Merit.

Miltonia Lydia var. Regina (*M. Princess Mary* × *M. Beau Brummel*).—This was represented by a small plant, consequently the flowers were small. The sepals and petals are crimson; the wide lip is white, with a mask and spottings of dark brownish-crimson, but rosy at the margins. Shown by Messrs. Charlesworth and Co.

Potinara Rosita (*Sophro-Laelio-Cattleya langleyensis* × *Brasso-Cattleya Rosita*).—A large-flowered form with lemon-yellow sepals and petals, faintly stained in the centre and at the tips with mauve; the big, frilled lip is light mauve, speckled and edged deeper mauve, and with a wide, orange-veined central area. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly.

Laelio-Cattleya Moloch var. Stromboli (*L.-C. St. Gothard* × *L.-C. Sargon*).—A brilliant, large-flowered variety with ample, deep rose-purple sepals and petals, and a wonderful frilled lip that is vivid, velvety ruby-crimson, with purple margin and base, and a dark, old-gold veined central area. Shown by Messrs. H. G. Alexander, Ltd.

Cypripedium Llancayo (*C. Mrs. Richards* × *unknown var.*).—A bold hybrid with a white-ground dorsal sepal, green at the base, and with numerous large, dark purple spots, often confluent. Petals green and brown, with purple spots; lip green with brownish veining. Shown by R. W. Rickards, Esq. (gr. Mr. H. Luff), Usk Priory, Monmouth.

Groups.

Messrs. Stuart Low and Co. arranged a bright exhibit which had a beautiful background of Oncidium varicosum Rogersii, and good plants of Cattleya Peetersii var. alba, C. Decie var. alba, C. labiata, C. Moira var. The Bride, and C. Fabia immediately in front of it. In the foreground they grouped the curiously-coloured Brasso-Cattleya Maroniris, Oncidium bicallosum. Dendrobium cymbidioides, the tiny-flowered D. nutans, Cymbidium Gamieanum and Maxillaria lepidota.

Messrs. Charlesworth and Co., submitted a group containing fine spikes of Odontoglossum crispum, O. Priapus, O. Princess Yolande, O. grande, Odontonia Etna, O. Aloma, Laelio-Cattleya Medusa, L.-C. Mysia, Sophro-Laelio-Cattleya Senator and other good things.

Messrs. Cowan and Co. showed Cypripediums in good style, with a background of Oncidium crispum and O. varicosum Rogersii. Outstanding Cypripediums were C. T. B. Armstrong, C. insigne, Harefield Hall var., C. Regina var. Seymouriae, C. Praim and C. Royal George.

Messrs. Sanders showed Cattleya Hardyana var. alba, C. President Wilson, C. Snowclad, the old Selenipedium macrochilum var. giganteum, Brasso-Cattleya Ilene var. tenebrosa, Arpophyllum cardinale, Cypripedium Fairrieanum, Saccolabium acutifolium, Bifrenaria aureofulva and other interesting subjects.

Messrs. Black and Flory and Baron Bruno Schröder each showed a few new seedling Orchids.

Floral Committee.

Present: Section A.—Mr. H. B. May (in the chair), Mr. J. M. Bridgeford, Mr. D. B. Crane, Mr. R. Findlay, Mr. C. F. Langdon, Mr. D. Ingamells, Mr. J. T. West, Mr. W. B. Gingell, Mr. G. W. Leak, Mrs. Lindsay Smith, Mr. J. B. Riding and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. C. T. Musgrave (in the chair), Sir W. Lawrence, Bart., Mr. Mark Fenwick, Mr. F. G. Preston, Mr. G. Reuthe, Mr. E. H. Wilding, Mr. C. Williams, Mr. T. W. Taulor, Miss Ellen Willmott, Mr. W. B. Cranfield, Mr. L. R. Russell, Mr. R. C. Notcutt, Mr. T. Hay, Mr. R. Cory, Hon. H. D. McLaren and Mr. N. K. Gould, Secretary.

Awards of Merit.

Chrysanthemum Hebe.—See National Chrysanthemum Society's Awards, page 392. Shown by Mr. H. Shoesmith, junr.

Chrysanthemum Yellow Monument. — See N.C.S. Awards, p. 392. Shown by Mr. T. Stevenson.

Chrysanthemum Sundown.—A medium to large Single variety made up of several rows of crimson-maroon ray florets with a small disc. Shown by Mr. H. Woolman.

Rose Autumn.—A very pretty H.T. variety of medium size. The centres of the blooms were of rich golden-yellow colour suffused with bronze and surrounded by velvety-rose-coloured outer petals. The leaves were dark green and somewhat suggestive of a Pernetiana origin. The stems were densely set with small thorns.

Rose President Hoover.—This showy H.T. Rose has much longer stems and slightly paler green leaves than the previous variety. It is also a well-formed variety of medium size and variable colouring, which may be described as shades of pink with outer petals of much deeper colouring. The two Roses, and a third variety, a deep crimsom H.T. named Mrs Herbert Hoover, were shown by Mr. C. Engelmann, who had brought them, packed in an unopened box, from Murray Hill, New Jersey, U.S.A., where they were cut on November 8. As the boxes had been unopened and the flowers had developed in the dark, their normal colours may not be the same as described above.

Groups.

Near the gallery, Messrs. L. R. Russell, Ltd., had an exceedingly interesting collection of twenty-three distinct Nepenthes. Not only were the plants especially well-grown and furnished with good typical "pitchers," but with the aid of plants of Cissus discolor and a ground-work of Maranta regalis and other sorts it made a very attractive exhibit. The principal Nepenthes were N. Sir William Thiselton-Dyer, N. Hookeriana, N. ventricosa, N. Russelliana, N. mixta, N. Mastersii, N. Lewis Bradbury, N. paradicea, N. Tiveyii and N. formosa. Mr. John G. Romer showed half-a-dozen well-grown plants of Begonia Rex varieties from a small, unheated greenhouse in Sandycombe Road, Kew Gardens, Surrey.

Among the plants which did not receive an award were Cyclamen Rohlfsianum, a species from Grenna and Italian North Africa. The large mottled leaves are very attractive and the plant also bears lilac-coloured floweres of perfect Cyclamen shape. It was shown by W. Van de Weyer, Esq., Clyffe, Dorchester. E. M. Preston, Esq., The Warren House, Hayes, Kent, showed a small plant of Staphylea gigantea bearing a splendid flower.

Excellent collections of greenhouse Carnations were staged by Messrs. C. Engelmann, Ltd., and Messrs. Stuart Low and Co. The former had good vases of Laddie, Spectrum, Rouge, Chintz, Maine Sunshine and Jazz. Messrs. Stuart Low and Co. showed, in Ann Horton. and R. A. Nicholson, two of their novelties of considerable merit. The former is a delicately beautiful Fancy, while R. A. Nicholson is a vivid scarlet-cerise bloom. Other good Fancies in this collection were Sheila Greer, Sunny, Daphne and Butterfly.

An imposing group of winter-flowering Begonias was set up by J. Pierpont Morgan, Esq. (gr. Mr. Steward), Well Hall, Hertfordshire, in association with equally well-grown plants of Gesnera chromatella and small Palms. The chief Begonias were Clibran's Pink and Altrincham Pink, two good doubles; Exquisite, a large single rose-shaded flower; Conquest, clear salmon-pink, and Eclipse, scarlet. An effective display of Statice profusa superba with white Carnations and Chrysanthemums was made by the Rolvenden Nurseries. Mr. G. Zambra had a good collection of Sweet Violets. The chief varieties were Princess of Wales, Princess Mary and Governor V. Herrick. Messrs. Blackmore and Langdon staged a collection of greenhouse Cyclamen of good useful types. The Misses Hopkins set out an attractive miniature moraine.

A handsome group of particularly well-grown Chrysanthemums was set up with their usual skill and taste by Messrs. H. J. Jones, Ltd. The exhibition varieties were represented by Lancashire, Hugh Mitchell, Mrs. Gilbert Drabble, W. Rigby and Red Majestic of large size and perfect form. The dainty little Pompons were especially well shown, and the varieties included Baby, Golden Climax, Primrose League and Snowdrop. There were also many Singles and Decorative varieties.

In the exhibit of Messrs. Keith Luxford and Co. the large exhibition varieties were represented by a golden-yellow seedling, Nottingham, Madame M. Stirling and Dresil. The chief Singles were Incomparable, Sonia, Absolute, Crimson Velvet and Daphne, while among the Decorative type were good vases of Balcombe Beauty and Baldock Crimson.

An attractive group of market type Chrysanthemums was displayed by Mr. A. G. Vinten. The Singles were especially meritorious, and these included Enid, Daphne, G. Fox Wilson, Sandown Radiance and Susan. Among the Decorative sorts were Alice Honeur, Balcombe Pink, Queen of Pinks and Ra.

A valuable collection of water-colour paintings of garden flowers was shown by the Rt. Hon. Sir Herbert Maxwell, Bart., Monreith, Wigtonshire. This included many Rhododendrons, Fritillarias, Buddleia globosa, Mutisia decurrens, Anchusa italica, Berberidopsis corallina, Abutilon vitifolium and Lavatera Olbia. Other exhibitors were Miss Lilian Forsyth, Mrs. T. H. Gibbard, Miss Gladys Thomasset, Mr. Lawrence Perugini, Mrs. A. C. Fowkes, Mr. V. F. P. Thompson and Violet Fawkes. There was also a very faithful little collection of Orchid paintings, made for the late Sir Trevor Lawrence.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. W. H. Divers, Mr. G. Kelf, Mr. H. Prince, Mr. J. Wilson, Mr. E. Neal, Mr. W. F. Giles, Mr. E. Beckett, Mr. G. F. Tinley, Mr. A. Bullock, Mr. P. A. Tucker and Mr. A. N. Rawes, Secretary.

Award of Merit.

Apple Woolbrook Pippin.—A very good seedling from Cox's Orange Pippin, shown by Messrs. Stevens and Sons, Woolbrook Nurseries, Sidmouth, Devonshire. The fruit is flattened conical in shape, with a fairly large, open eye set in a shallow basin, the short stalk being set in a deep, rather narrow cavity. The ground colour is primrose-yellow, but this is mostly hidden by the bright red flush, which makes the fruit of very attractive appearance; the stalk cavity is russeted. The flesh is firm and crisp, and the flavour rich and sweet. An Apple with a future.

The Walnut Competition.

The object of this competition was to discover good varieties among the many seedling Walnuts throughout the country, and judging by the enormous number exhibited, considerable success in this respect was achieved by those responsible for the organising of it, chief among these being Mr. Howard Spence, a recognised authority on Walnuts, who conducted the preliminary examination of the nuts and also assisted in the final judging.

There were two classes for Walnuts, open to all, one for fresh nuts and the other for dried nuts, 3 lbs. gathered from one tree being required. In the two classes there were 732 entries, and a vast range in size, form, general appearance, thickness of shell and quality of kernel was portrayed.

In Class 1, E. K. Ransell, Esq., Ixworth, Suffolk, was first, with a dish of nuts of medium size, thin shelled, and with full, clean kernels. J. Plowman, Esq., Coldcroft Farm, Huntley, was second, showing thin-shelled, oval fruits with large kernels.

This latter exhibitor was first in Class 2, A. E. Wraight, Esq., Faversham, being second, with clean Walnuts, oblong-oval in shape, thin-shelled, and with large, full kernels.

The Cobnut and Filbert Competitions were disappointing. In the amateurs' section there were only three exhibits of one dish of Kentish Cob, and the first prize only was awarded, this going to E. M. Chambers, Esq., Greenhill House, Otham, Kent. D. W. Berkett, Esq., (gr. Mr. W. Waglen), Blagden House, Trowbridge, showed the best dish of any Filbert or Cobnut other than Kentish Cob, the second prize being awarded to Lord Harlech (gr. Mr. Back), Brogyntyn, Oswestry.

In the Market Grower's section, Messrs. Thornton, Skinner and Co., Leeds, Kent, shared the first prize for the best half-sieve of Kentish Cob, packed for market, with Mrs. Burgess, Moons Farm, East Farleigh, Maidstone, the second prize being awarded to H. G. Chambers, Esq., Greenhill, Otham, Kent.

Groups.

An extremely interesting exhibit of illustrations and specimens of Walnuts grafted on roots of Juglans nigra by the "Treyve System," was set up by M. L. Treyve, Trevoux, France, who also showed specimens of fruits of various Walnuts and Butternuts, Juglans species, Platycaryas and Caryas, embracing over one-hundred-and-forty examples in all.

The California Walnut Growers' Association showed fruits of four varieties of Walnuts —the pick of those grown in America; these were Diamond Large Eurekas, with large, long nuts, well-filled with clean kernels; Diamond Large Paynes, with big, rounded fruits, very fine; Diamond Large Budded, with slightly smaller nuts than the preceding and thicker-shelled; and Diamond Large Mayettes, the nuts of which are about the same size as the preceding but with thinner shells and large, clean kernels.

A good deal of work has been carried out at East Malling Research Station recently in connection with Walnut propagation, and already much valuable information concerning the suitability of various stocks and methods of grafting has been obtained, so that the splendid exhibit from this station demonstrating Walnut propagation was of special interest.

The exhibit was set up in sections. Nuts of the species tried as stocks, namely, Juglans regia, J. nigra, J. californica, J. cordiformis, J. cinerea, J. Royal (hybrid) and J. Paradox (hybrid) were shown, and the method of stratifying Walnuts to preserve them for sowing in the open in March was demonstrated. One-year-old and two-year-old specimens of species suitable for grafting were shown, but layers are found to be better as stocks, being more uniform in growth, as seedlings show considerable variation. Layered plants of J. regia (English in preference to Himalayan), have been found most suitable as stocks for Walnuts in this country; in America, seedlings of the Royal and Paradox hybrids are at present much favoured, although layering does not appear to have been tried in that country yet. Grafting on to Pterocarya caucasica and P. sinensis, closely related to Juglans, is not recommended, as although union was quick, after-growth was very poor.

The various methods of grafting were demonstrated. Greenwood grafting under glass during July and August is recommended as a cheap method of securing stock for nurserymen, and this method gives one-hundred per cent. "take"; grafting under glass in February and March gives good results also, seventy to one-hundred per cent. of the grafts being successful. The double-tongue graft is employed, and paraffin wax is used for covering the graft. Top-grafting of headed-back old trees was also demonstrated. Specimens of various grafted trees were shown, small grafted trees in four-and-a-half inch pots being recommended as most suitable for dispatch to distant countries, as these allow for economy of cost and transport and when planted grow away freely. The whole exhibit was one of extreme interest, staged with the thoroughness associated with the East Malling Research Station.

Messrs. Shearns, the well-known purveyors of fruits and flowers, showed an interesting collection of magnificent Walnuts.

GUILDFORD CHRYSANTHEMUM.

The reputation of this Society for staging a good show was well maintained in the Thirty-seventh Annual Exhibition held on November 6 and 7. There was keen competition in all classes, and fine collections of flowers, fruits and vegetables were to be seen in both amateur and trade groups, while Messrs. Fogwill, of Guildford, made quite an artistic display of many varieties of Potatos and a few Onions.

Conspicuous among prize-winners was The President of the Society. From his gardens at Cross Lanes he staged twelve exhibits. These were awarded eight first and four second prizes. Mr. Smallpeice readily passes on the honour of this creditable achievement to Mr. W. Binfield, his gardener.

A notable feature was the class for Singles, which occupied almost one side of the large hall, and presented a dazzling mass of flowers. The first prize exhibit in this class contained an extraordinarily good collection of blooms and was an example of well-nigh perfect staging.

Among the exhibits of Apples, the winning dishes of Peasgood's Nonesuch and Bramley's Seedling were of exceptional merit; these were shown by Mortimer Menpes, Esq., of Pangbourne. The Bramley's Seedlings carried the prize for the heaviest dish in the show.

The exhibition, which drew a large attendance each day, is held in the largest available hall in the town, but is handicapped for lack of space. F. F. Smallpiece, Esq. (gr. Mr. W. Binfield), was first for a group of Single Chrysanthemums; for six vases of Single Chrysanthemums (not disbudded); for twelve Japanese blooms, distinct; for six Japanese blooms, one variety, on boards; for six incurved blooms, one variety; and for six Incurved blooms, distinct. The best collection of Chrysanthemums in pots was from Mrs. Paynter (gr. Mr. H. Cook), while in a similar class, limited to amateurs and single-handed gardeners, Mr. W. Bullen was first.

E. F. Wheeler, Esq. (gr. Mr. A. Simmons), was a successful exhibitor in the Japanese Chrysanthemum classes, gaining first prizes for eighteen Japanese blooms, no fewer than twelve varieties; eighteen Japanese blooms in six varieties; and for nine Japanese blooms, any varieties. Neil Gassage, Esq. (gr. Mr. H. Huntley), showed the best six vases of Single Chrysanthemums, disbudded; and Messrs. Bond were first for six Japanese blooms, distinct. Neil Gassage, Esq., showed the leading six specimen Chrysanthemum plants, his best being a grand specimen of Golden Seal.

In the fruit classes, Mrs. Hansard led for two bunches of black Grapes, and for white Grapes; M. Menpes, Esq., staged the best six dishes of Apples and Earl Beatty the best twelve dishes; Col. Warburton was first for two dishes of Pears, distinct.

The best collection of vegetables, nine sorts, was Earl Beatty's.

NATIONAL CHRYSANTHEMUM.

Fifteen new Chrysanthemums were placed before the Floral Committee at the meeting held in the new Horticultural Hall, on Monday, November 18. The following awards were made.

First Class Certificates.

Viscountess Hambledon. V.1. a.—A large-sized, Single variety of rich crimson colour, with a narrow yellow zone around the disk. Shown by Mr. W. H. Turnham, Greenlands Gardens, Henley.

C. G. Weston. II.2.b. A beautiful golden-yellow Incurved Japanese variety, very fine disbudded, and excellent in spray form, but in the latter condition it loses its Incurving style and assumes a slightly deeper gold tint. Should prove a very useful decorative and market variety. Shown by Messrs. Cragg, Harrison and Cragg.

Sundown. V.1.a.—A very large Single variety of good exhibition style. The colouring is deep ruby-crimson, with a golden centre.

Desert Song. V.1.a.—Another very big Single variety with broad florets of reddish-bronze hue, tipped with gold.

Trent. II.1.a.—This is a fine, white Japanese variety of exhibition size and form; it is deeply built and has broad, loosely curling outer florets. These three varieties were shown by Mr. H. Woolman.

LLANISHEN AND LISVANE CHRYSANTHEMUM.

This Society held its first show in the Wesley Hall, Llanishen, on November 15. It was a wonderful exhibition of exquisite blooms and well-grown plants, and great credit is due to the organisers of what appears to be the leading Chrysanthemum show in the Cardiff and South Wales district.

A luncheon was held at the Church Inn, over which Major J. G. Gaskell, the President, presided, and among others who attended were Douglas Cory, Esq., W. G. Gunstone, Esq., Mr. W. Bennett (Chairman), Mr. W. H. Pryce (Treasurer), Mr. Th. H. Morgan (Secretary), and the judges, Mr. H. R. Farmer and Mr. M. Trye, who said they were surprised and pleased with the quality of the flowers.

A special feature of the exhibition was the class for berried sprays and coloured foliage, the prizes for which were given by Alan Gibbs, Esq. This class was well represented and went to show the material available for embellishing gardens in late autumn.

The classes for fruits and vegetables were well filled, and the colour of the Apples and Pears was remarkably good. A very attractive non-competitive exhibit of Begonia Gloire de Lorraine and other subjects was arranged by Sir William Thomas's gardener.

Among the chief first prize winners were E. M. Hann, Esq., Alan Gibbs, Esq., Major Gaskell, D. Cory, Esq., G. E. Turner, Esq., Gilbert Robertson, Esq., W. North Lewis, Esq., E. A. Purser, Esq., Mrs. Morgan Lewis, Mr. J. Haines, Mr. G. H. Mullins, Miss F. Willey, Mr. G. H. Pryce, Mr. M. C. Kirby, Mr. W. Clarke, Mr. A. Stone and Mr. John Rees. For the best bloom in the show, Mr. W. H. Pryce, gardener to Major J. G. Gaskell, was awarded the prize for a remarkably fine specimen of Mrs. Algernon Davis.

BIRMINGHAM CHRYSANTHEMUM.

November 12, 13 and 14.—The sixty-fifth Annual Show, held in the world-famous Bingley Hall, Birmingham, was a great success. The Show Committee keeps abreast of the changing times, making the schedule representative and attractive to exhibitors by introducing new classes and offering good cash prizes. It was very gratifying to hear so many complimentary remarks about the character, variety and all-round quality of the show, which is one of the biggest and best outside London. So numerous were the exhibits of Chrysanthemums and honorary displays that the great gallery around the hall had to be requisitioned for the competitive vegetable classes.

Cut Blooms.

The principal new class, which it was hoped would appeal to some of the best exhibitors in the country was a success, and although only three exhibits were placed before the judges, each showed high culture and artistic arrangement. The schedule required cut blooms representing so many types or forms of the Chrysanthemum as possible, arranged on a ground space of fifteen feet by six feet, to face one way, and all stands, vases and receptacles had to rest on the ground. Cut foliage and plants (but not Codiaeums) were allowed. The object of this new class is to demonstrate the varied character and adaptability of the Chrysanthemum for different purposes. The first prize, a Silver Challenge Cup presented by the proprietors of *Amateur Gardening*, supplemented by £15 by the Society—was won by Mr. H. Woolman, Shirley, Birmingham, whose handsome display included specimens of Mrs. Algernon Davis, Hugh Mitchell, Mr. T. W. Pockett, Birmingham, Queen Mary, Aquitania, Yellow Majestic, Louisa Pockett, Thames and Avon. Incurved, Single, Pompon and Anemone-flowered sections were represented by choice varieties. The second prize exhibit, which came from the King's Acre Nurseries, was remarkable for some beautiful flowers of Birmingham, J. Symonds, Yellow Majestic, Charles Davis, Miss J. Moore, Edith Dymond, Daphne, White Model and Ondine. Third, Messrs. Clement Dally and Co.

The President's prize of £5 was again offered for a group of Single Chrysanthemums. Here again, Mr. H. Woolman won the first prize with uncommonly large flowers of Kirkland's Crimson, Fantasy, Yellow Mona, H. Shoebridge, Susan, Mrs. W. J. Godfrey, Golden Seal, R. Andrews, Lady Aileen and Mrs. E. Hudd; second, Mrs. Guthrie (gr. Mr. P. Burr), Northampton, who showed big, well-coloured specimens of Sandown Radiance, Edith Dymond and Golden Seal.

The class for thirty-six Japanese Chrysanthemums in not fewer than eighteen varieties and not more than three blooms of any one variety, each flower in a separate vase, had four very good entries. The first prize, which consisted of a Silver Challenge Shield and £15, was won by the Dowager Lady Annaly (gr. Mr. D. Cameron), Holdenby House, Northampton, whose flowers were of regular size and beautifully fresh. Varieties of outstanding merit included Miss Ada Ellis, Norman Chittenden, Yellow Majestic, Red Majestic (premier flower in the show), Julia, Mrs. K. Luxford, Victory, W. Rigby, Queen Mary, Ajax and Mrs. Gilbert Drabble. Colonel Gretton (gr. Mr. A. Graham), Melton Mowbray, last year's winner, was a close second. His flowers were rather bigger than those of the first prize-winner, but not so fresh nor so even; third, Mr. H. H. Tomlinson, Derby, whose display included grand flowers of several good sorts.

The best nine vases of Japanese Chrysanthemums, in three varieties, one bloom in a vase, came from G. L. Waller, Esq. (gr. Mr. E. Avery), Finstall Park, Bromsgrove, who had beautiful examples of Cissie Brunton, Mr. T. W. Pockett and Red Majestic; second, Mrs. Rees-Mogg (gr. Mr. C. Hebbourn), Stratford-on-Avon, with clean, fresh specimens of Princess Mary, Mrs. Gilbert Drabble and Majestic; third, the Dowager Lady Annaly.

The first prize for twelve Japanese Chrysanthemums, in not fewer than nine varieties, one bloom in a vase, was won by Mrs. G. Rees-Mogg, with large, well set up blooms over a ground work of autumn-tinted foliage. The following varieties were of outstanding merit, viz., Mrs. Gilbert Drabble, Princess Mary, Red Majestic, Mrs. George Monro, Birmingham and Queen Mary; G. L. Waller, Esq. (gr. Mr. E. Avery), was second; and Viscount Cobham (gr. Mr. J. H. Roberts), Hagley Hall, Stourbridge, third.

In the class for three vases of a pink-coloured Japanese Chrysanthemum, the first prize was won by G. L. Waller, Esq., with handsome examples of Mrs. T. W. Pockett; second, C. Terry, Esq. (gr. Mr. J. Hart), Redditch, with General Petain; third, Colonel Gretton. The best three blooms of a crimson-coloured Japanese Chrysanthemum were contributed by the Dowager Lady Annaly, who staged richly-coloured specimens of Birmingham; second, Mrs. L. W. Wade (gr. Mr. R. H. Rogers), Kenilworth, with Mrs. A. Holden; while of the nine entries in the class for three white Japanese Chrysanthemums, G. L. Waller, Esq., excelled with magnificent blooms of Cissie Brunton, with Major S. J. Thompson (gr. Mr. J. White), Wolverhampton, second, showing Mrs. Gilbert Drabble. C. Terry, Esq. (gr. Mr. J. Hart), took the lead in the class for three blooms of a yellow Japanese Chrysanthemum, with Mrs. R. C. Pulling in extra fine condition; G. L. Waller, Esq., was second. The best three vases of any coloured Japanese Chrysanthemum, except those specified above, were exhibited by Mrs. Rees-Mogg, who had beautiful specimens of Majestic. The Dowager Lady Annaly was second, with Red Majestic, and Colonel Gretton, third, with Julia.

For half-a-dozen varieties of Single Chrysanthemums, six blooms in a vase, Mrs. Guthrie was placed first with beautifully fresh vases of Golden Seal, Susan, Molly Godfrey, Robert Collins, Reginald Godfrey and Mrs. W. J. Godfrey; second, Mr. J. G. Jenkins, Berkswell whose best flowers were Susan Golden Seal and Edith Dymond; third, the Dowager Lady Annaly.

The first prize exhibit of six varieties of Decorative Chrysanthemums, six blooms of each, came from Mrs. Guthrie, who showed Freda Bedford, Monument, In Memoriam and Swardeston White; Mr. E. J. Keeling, Small Heath, Birmingham, was second, his set including good vases of Iolanthe and a promising unnamed seedling from Romance. Colonel Gretton was the leading exhibitor of one vase of nine Single Chrysanthemums, one bloom on a stem. He had large, richly-coloured flowers of Edith Dymond pleasingly arranged with intensely coloured Oak sprays and Selaginella; second, Mr. J. G. Jenkins, with Susan; third, Mrs. Guthrie.

There were three splendid exhibits in a new class for twelve Japanese Chrysanthemums in distinct varieties, open only to members of the National Chrysanthemum Society. The first prize included £3 and a Silver Medal, and the winning exhibitor was the Dowager Lady Annaly, her set including magnificent flowers of Queen Mary, General Petain, Miss Ada Ellis, Red Majestic and Mrs. R. C. Pulling; second, Mr. H. H. Tomlinson; third, J. C. Hill, Esq. (gr. Mr. A. Bennett), Kidderminster.

Local Classes.

In the class for twelve Japanese Chrysanthemums, J. W. Moore, Esq. (gr. Mr. F. Moorman), King's Norton, took the lead with heavy blooms of Mrs. T. Slack, Mona, Majestic, Mrs. R. C. Pulling, Mrs. George Monro, Mrs. B. Carpenter and Victory; second, Major F. C. Hughes, Sutton Coldfield; third, Councillor F. W. Daniels (gr. Mr. W. G. Prosser), Edgbaston. In a class for twelve Japanese Chrysanthemums grown within five miles of Birmingham, F. Jefferson, Esq. (gr. Mr. C. Horton), Edgbaston, excelled, W. Rigby, Mrs. A. Holden, Mrs. B. Carpenter and Mr. T. W. Pockett being the pick of his really good set. Mr. F. J. Lucas, Bearwood, was second, with very creditable blooms. The best two vases of Japanese Chrysanthemums, three blooms of each variety, was shown by Mr. T. Blower, Perry Barr, who had large well-finished specimens of Shirley Golden and William Turner; second, Major F. C. Hughes. Mr. T. Blower also took the lead in a similar class reserved for growers residing within five miles of Birmingham.

F. Jefferson, Esq., was awarded first prizes for (1) two vases of Incurved Chrysanthemums, with Romance and Frank Trestian, and (2) for three vases of Single Chrysanthemums in three varieties, six stems of each, showing Mrs. Harry Woolman, Susan and Red Molly. The only entry in the class for three vases of disbudded Chrysanthemums was from Mr. E. J. Keeling, but the one for six vases of disbudded Single Chrysanthemums made a splendid show, with Mr. J. G. Jenkins, first, and Mr. E. Powell, Bearwood, second.

Table Decorations.

Table Decorations were not so good or so numerous as in some previous years. Of the eight tables decorated with Chrysanthemums, the best was that arranged by Mrs. F. W. Hickton, Belbrighton, being a charming combination of yellow and bronze-coloured flowers relieved with slender sprays of intensely coloured Ampelopsis Veitchii and Selaginella; second, Mrs. W. E. Ball, Metchley Park, Harborne, with crimson Decorative and yellow Single varieties; third, Mrs. S. Warren, Handsworth.

In the next class, in which any flowers could be shown in bowls or vases, Mr. W. H. Hall, Northfield, was placed first with pink Carnations; Mrs. E. Reynolds, Clavendon, second, with red Carnations; and Mrs. W. E. Ball, third, with pink Single Chrysanthemums. The class for a basket of Chrysanthemums made a splendid show, and the first prize was deservedly awarded to Miss M. L. Bailey, Berkswell, for a very artistically arranged exhibit; second, Mr. E. J. Keeling; third, Mrs. F. W. Hickton.

Special Chrysanthemum Classes.

Mr. H. Woolman, Shirley, Birmingham, offered prizes in the three following classes: (1) for nine Japanese Chrysanthemums: first, Mr. H. H. Tomlinson, whose flowers of Princess Mary, Mrs. A. Holden, Queen Mary and W. Rigby were of superior merit; second, Mr. J. G. Jenkins; (2) for six Japanese Chrysanthemums on boards: first, Mr. H. H. Tomlinson, with Mr. John Allen, Old Hill, second; and (3) for twelve Japanese Chrysanthemums; first, The Dowager Lady Annaly, with G. L. Waller, Esq., second.

Mr. H. Woolman also offered a guinea for the best Japanese Chrysanthemum in the show (trade excluded), and this was won by the Dowager Lady Annaly, with Red Majestic.

Miscellaneous Plants.

First prizes in classes for (1) twelve pots of Begonia Gloire de Lorraine, and (2) six pots of Begonia Gloire de Lorraine, were won by Viscount Cobham, with medium-sized specimens covered with flowers. G. L. Waller, Esq. (gr. Mr. E. Avery), showed the winning set of twelve Cyclamens; and T. Andrews, Esq. (gr. Mr. W. A. Wait), Lichfield, scored in the class for six Cyclamens. The last-named exhibitor secured first prizes for (1) three Palms, and (2) one Palm.

The half-a-dozen scarlet Salvias that gained first prize for J. W. Moore, Esq. (gr. Mr. F. Moorman), King's Norton, were particularly good, being dwarf, bushy and smothered with long racemes of flowers. The Earl of Plymouth (gr. Mr. F. Molyneux), Hewell Grange, Redditch, sent the leading set of six Primula sinensis. G. L. Waller, Esq., won the first prize for six Primula obconica; his plants carried richly-coloured flowers. The Dowager Lady Annaly beat T. Andrews, Esq. (gr. Mr. W. A. Wait) in a class for six table plants. Messrs. Clibrans offered prizes for six pots of Cyclamens, which were won by G. L. Waller, Esq., and the Earl of Plymouth, first and second respectively.

Fruits.

The Studley Horticultural College was the only exhibitor in a class for a collection of British-grown fruits, on a table space of fourteen feet by four feet, and the first prize of £10 was deservedly awarded to it for an attractive exhibit which included black and white Grapes, Apples, Pears, Melons, Quinces and Coe's Golden Drop Plums.

Mr. C. W. Powell, Wareham, Hereford, won first prizes for single dishes of Apples Allington Pippin, Bramley's Seedling, Hambling's Seedling, King of the Pippins and Rival. Mr. H. Wallhead, Leamington, had the best dish of Bismarck, and C. L. Phillips Powell, Esq., Llyswen, Brecon, led with Annie Elizabeth; and in a class for any dessert variety not mentioned in the schedule, showing shapely fruits of Herrin's Pippin. Miss Avis M. Powell, Llyswen, had the winning dishes of Blenheim Pippin and Lane's Prince Albert. Miss E. M. Powell, Boughrood, won first prizes for dishes of Cox's Orange Pippin, Cox's Pomona, Charles Ross, James Grieve, Lord Derby, Newton Wonder, Peasgood's Nonesuch, The Queen and Warner's King, as well as in another class for a culinary variety not named in the schedule.

Canon Lea, Droitwich, was first with lovely-coloured specimens of Gascoyne's Scarlet, and Miss E. M. Powell won the first prize for three dishes of culinary Apples.

The Bishop of Lichfield (gr. Mr. J. G. Knight), Stafford, had the best dish of Beurré Diel Pear, and he also beat nine contestants in the class for any Pear not recognised in the schedule. He showed exceptionally good examples of Marie Louise.

H. G. Bois, Esq. (gr. Mr. A. E. Moss), Alcester, took the lead with Pear Durondeau, and Miss E. M. Powell exhibited the best Doyenné du Comice. F. J. J. Gibbons, Esq., was successful with Emile d'Heyst and Canon Lea won the first prize for Pitmaston Duchess.

There were six first-rate exhibits in the class for three bunches of black Grapes. The Studley Horticultural College was first, with shapely bunches of Alicante; second, the Dowager Lady Annaly. Lady Bird (gr. Mr. R. Bennett), Solihull, excelled in the class for three bunches of white Muscat Grapes with handsome bunches of Muscat of Alexandria; second, the Studley Horticultural College, with Canon Hall Muscat.

Competition was strong in the local classes for (1) two dishes of kitchen Apples, and in another for two dishes of dessert Apples. Mr. W. Payne, Marston Grange, won both first prizes with large, handsome fruits, and Mr. C. G. Compton took second prize in each class.

Vegetables.

Vegetables were shown in splendid condition and competition was better than usual. H. G. Bois, Esq. (gr. Mr. A. E. Moss), Alcester, won first prizes for (1) six varieties of Potatos, and (2) twenty yellow Shallots. Major Harcourt Webb (gr. Mr. W. Gaiger), Spring Grove, Bewdley, was successful in classes for (1) nine Onions; (2) six Carrots; (3) six Leeks; and (4) six Parsnips.

Mr. C. Nix, Bournville, had the best round Beet, and Canon Lea excelled with long Beet. Mr. A. H. Hickman, Cookley, Kidderminster, was first with Celery. Mr. W. Hall led in the Cauliflower class, and in another for Savoys. Mr. E. J. Keeling won with red Pickling Cabbages, and Mr. F. Cartwright, Kidderminster, with Brussels Sprouts. Mr. S. G. Fathers, King's Heath, showed the best red Shallots, and Mr. E. B. Preater, Moseley, had the winning dishes of (1) round Potatos, and (2) kidney Potatos.

Honorary Exhibits.

Large Gold Medals were awarded to Messrs. Gunn and Sons, for Roses and Box trees; Mr. John Cock, for Potatos; Mr. H. Woolman, for Chrysanthemums and floral designs; Messrs. Bakers for a floral display, dried flowers, and shrubs; Messrs. D. Stewart and Sons, for shrubs and alpine plants; Mr. F. A. Godfrey, for an ornamental garden; the King's Acre Nurseries, for Chrysanthemums and fruits; Messrs. J. and W. Green, for Chrysanthemums; and Messrs. P. and F. Smith, for an ornamental garden.

Small Gold Medals were awarded to Messrs. Allwood Bros., for Carnations; Messrs. Hewitt and Co., for a floral display; Messrs. Clement Dally and Co., for vegetables; the Forest and Orchard Nursery Co., for fruits and hardy trees; and Mr. R. Scott, for hardy shrubs.

Silver-gilt Medals were awarded to Messrs. Hopwood and Sons, for fruits; Messrs. Blackmore and Langdon, for Cyclamens; the Bournville Village Nurseries, for fruits and shrubs; and Mr. F. Rich, for Chrysanthemums, Cyclamen and Primulas.

A Silver Medal was awarded to Miss S. S. Thompson, for Cacti.

Obituary.

Frederick Hanson.—For nearly forty years gardener to the Crossley family at Somerleyton Hall, Suffolk, Mr. Frederick Hanson passed away on November 1, at a nursing home at Norwich. Mr. Hanson was sixty-eight years of age, and during his long period of service at Somerleyton he not only maintained, but enhanced, the horticultural features of this fine garden, famous among other things for its large winter garden. His relations with his employers were of the most cordial character, as shown by Major the Hon. Francis Crossley's observation, "Not only have we lost a splendid servant, but also a fine friend." At the funeral at Somerleyton Church, there was ample evidence of the deep affection and great respect in which Mr. Hanson was held by the members of the various East Anglian horticultural societies, horticulturists in many parts of the county, Lord and Lady Somerleyton, and other members of the Crossley family.

Charles E. Pearson, V.M.H.—The news of the sudden and tragic death of Mr. Charles E. Pearson came as a great shock to us, as he was in his usual good spirits when we were chatting to him on the occasion of the National Chrysanthemum Society's Show, at Westminster, a few days ago. One of the three brothers who have for so many years conducted the business of Messrs. J. R. Pearson and Sons, Lowdham, Mr. Charles E. Pearson concerned himself chiefly with florists' flowers and hardy plants, particularly during the latter part of the firm's tenure at Chilwell; in those days he was a skilful and extensive cultivator of Chrysanthemums, Pelargoniums and Fuchsias. A man of unbounded energy, he was amazingly cheerful, despite the disability of deafness which had, unfortunately, increased in recent years, and was the primary cause of his tragic end. On the 14th instant, when on his way to Nottingham, and while his daughter went to the booking office at Lowdham, he set out to cross to the opposite platform by the level-crossing. The gates were closed against the public, and there was a dense fog, so Mr. Pearson neither saw nor heard the approach of a train; the engine struck him and he sustained such severe injuries that he never regained consciousness, and passed away at his home, Hillcrest, on the following day. As Secretary of the Horticultural Trades Association—which he founded—for a score of years, and as Editor of the *Horticultural Advertiser*, founded by himself and Mr. Alfred H. Pearson, V.M.H., Mr. Charles E. Pearson did a vast amount of work for the horticultural industry. Despite his seventy-three years, he continued young in spirit and outlook, and few people knew his age. To the last he was a sportsman, and although he had to give up hockey some years ago, he continued to play tennis, and last winter he skated like a man of half his years. Our friend—and we have enjoyed his friendship for nearly half-a-century—had one great hobby, and that was the collection of birds' eggs, indeed, he was a well-known ornithologist, and visited Norway, Nova Zembla, Algeria, and many European countries in pursuit of his hobby. A widow, one son and two daughters mourn the loss of a husband and father who greatly loved his home and family; we offer them our deepest sympathy. One son was killed in the war; the other, Mr. Aubrey Pearson was badly damaged in the conflict, but survived, and is now in charge of the firm's seed farm at Marks Tey. Mr. Charles E. Pearson led a full and useful life and made hosts of friends in this country and on the Continent, all of whom will deeply deplore the death of such an upright, cheerful and able business gentleman. He was awarded the Victoria Medal of Honour in Horticulture in 1924, and for a long period of years he was a member of the R.H.S. Floral Committee, and a regular attendant at the R.H.S. meetings, usually coming from Lowdham, fulfilling his duties as Committeeman, reporting the show, and returning home on the same day. A portrait and appreciation of Mr. C. E. Pearson appeared in *The Gardeners' Chronicle* of April 11, 1925.

Thomas S. Simpson.—Born at Peebles, Scotland, in 1884, Mr. Thomas S. Simpson served his apprenticeship at Stobo Castle, and passed on to Whittinghame, under Mr. Garrett, and thence to Drumlanrig, under Mr. David Thompson. He served as foreman at Hopetoun for one year, and for five-and-a-half years as foreman under Mr. Hunter, at Lambton Castle. For many years he was head gardener to F. S. H. Dyer-Bennet, Esq., at Stourton Court, Stourbridge. After the sale of Stourton, he took charge of Glemham Hall Gardens, Wickham Market, Suffolk, for the Earl of Guildford. During his service at Glemham he received every encouragement from Lord Guildford, and carried out extensive improvements there. He was also a keen competitor at Woodbridge Floral Fêtes, and won many prizes for both plants and fruits, particularly Grapes. When Glemham was sold he took charge of the beautiful Newstead Abbey Gardens, Nottinghamshire, under Sir Charles Markham; and when Lady Markham gave up Newstead, he became gardener at The Cliff, Warwick, the property of Sir Michael Laken, Bart. He retired in July, 1929, and went to live with his youngest son at Warsop Vale. He passed away after a brief illness on October 9, and was buried at Warsop, on October 11, among numerous floral tributes from former employers and many friends.

ANSWERS TO CORRESPONDENTS.

Cyclamen Corm Diseased.—*A. C.* Your parcel had burst open in transit, and the Cyclamen corm had disappeared from the box in which it was sent.

Gladioli not Flowering.—*W. K.* The Gladioli corms and foliage are healthy and free from attack by any pathogenic organism. The reason for the absence of flowers this season is due to the planting of immature corms in spring. Unless mature flowering corms are planted only leaves will be produced.

Grubs in Ground.—*J. A. G.* If you gave us some idea, or sent specimens, of the pest you are troubled with, we might be able to assist you better. A good dressing of quicklime should prove beneficial if dug into the soil.

Names of Plants.—*H. T.* 1, Picea orientalis; 2, Taxus baccata; 3, Viburnum Tinus (Laurustinus); 4 Prunus Laurocerasus (Laurel); 5, Cupressus Lawsoniana var. Allumii; 6, Cotoneaster horizontalis; 7, Taxus baccata var. fastigiata; 8, Cupressus Lawsoniana var. erecta viridis; 9, C. Lawsoniana; 10, C. obtusa; 11, Osmanthus Delavayi; 12, Salix sp.; 13, Veronica cupressoides; 14, Lysimachia Nummularia; 15, Veronica prostrata; 16, Acaena microphylla; 17, Acaena Sanguisorbae; 18, Cerastium tomentosum; 19, Muehlenbeckia complexa.—*N. C. C. C.* Gaultheria pyroloides.—*H. R. G.* Eucomis punctata.—*C. H.* 1, Phyllocactus, please send in flower; 2, Mamillaria gracilis; 3, Erysimum cheiranthoides; 4, Eupatorium riparium; 5, Crassula portulacea; 6, Impatiens Sultanii; 7, Acanthopanax rincifolium; 8, Abutilon, please send in flower.

Communications Received—G.—G. S.—F. W. T.—W. T. S.—W. S.—C. N.—C. B. S.—J. T. W.—H. A. P.—H. G. K.—R. M.—C. W.—L. T.—C. E.—S. W.—F. J.—R. C. N.—C. V. S.—G. B.—J. C.

MARKETS.

COVENT GARDEN, Tuesday, November 19, 1929.

WE cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated.)

	s. d. s. d.
Adiantum cuneatum, per doz.... ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.... ...	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	30 0-36 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	18 0-24 0
Crotons, per doz.	30 0-45 0
Cyclamens, various, 32's, per doz.	48 0-54 0
— — per doz. ...	18 0 24 0
Cyrtomiums ...	10 0-12 0

	s. d. s. d.
Erica gracilis, per doz. ...	24 0-30 0
— nivalis, per doz.... ...	24 0-30 0
— the above in 60's, per doz.	10 0-12 0
— the above in thumbs, per doz. ...	6 0—8 0
Marguerites, white, per doz.... ...	18 0-24 0
Nephrolepis, in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small „ ...	4 0—5 0
—72's per tray of 15 ...	2 6—3 6
Solanums, per doz. ...	15 0-18 0
—60's, per doz.	9 0-10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-10 0
—cuneatum, per doz. bun. ...	7 0—8 0
Arums (Richardias), per doz. blooms	8 0-10 0
Asparagus plumosus, per bun., long trails ...	2 0—2 6
—med. sprays	1 6—2 6
—short „ ...	0 9—1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 3—1 6
—short „ ...	0 6—0 9
Camellias, white, per doz. ...	2 6—3 0
Carnations, per doz. blooms...	2 6—6 0
Chrysanthemums, bronze, per doz. blooms...	2 6—6 0
—white, per doz. blooms ...	2 6—6 0
—yellow, per doz. blooms...	2 6—6 0
—pink, per doz. blooms ...	2 6—5 0
—bronze, sprays, per doz. bun.	9 0-18 0
—white, sprays, per doz. bun.	9 0-18 0
—yellow, sprays, per doz. bun.	10 0-15 0
—pink, sprays, per doz. bun.	9 0-15 0
—large specimen blooms, per doz.	9 0-12 0
—single, disbudded, per doz. blooms	4 0—6 0
— — spray, per doz. bun. ...	12 0 18 0
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0-12 0
Foliage—	
Eucalyptus, per pad ...	5 0—6 0
Myrtle, large, per doz. bun.	1 6—1 9
Pittosporum, per doz. bun.	18 0-30 0
Ruscus racemosus, per doz. bun....	9 0-18 0

	s. d. s. d.
Forget-me-nots, per doz. bun.	10 0-15 0
French—	
Acacia (Mimosa), per doz. bun.	15 0-18 0
Carnations, various, per doz. bun....	9 0-10 0
Chilies, loose, per pad ...	5 0—6 0
Marguerites, yellow, per pad ...	6 0—7 0
Narcissus Paper White, per doz. bun....	4 6—6 0
—Soliel d'Or, per doz. bun.	6 0—7 0
Ranunculus carmine, per doz. bun.	6 0—7 0
Violets, Parma, large, per bun. ...	4 0—5 0
Heather, white, per doz. bun.	— 12 0
Lilium longiflorum, long, per bun. ...	— 5 0
—auratum, per doz. blooms .	10 0-12 0
Lily-of-the-Valley, per doz. bun.	18 0-27 0
Marigolds, per doz. bun. ...	2 6—3 6
Myrtle, green, per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	30 0-42 0
—Cypripediums	9 0-18 0
Roses, per doz. blooms—	
—Columbia ...	3 6—5 0
—Richmond ...	2 6—6 0
—Yellow ...	2 6—5 0
—Molly Crawford	2 6—3 6
—Mad. Butterfly	2 6—6 0
Smilax, per doz. trails ...	3 0—4 0
Violets, single, per doz. bun.	2 6—5 0

REMARKS.—No doubt the unfavourable weather conditions during the past week were responsible for the general slackness throughout this department. Roses and best Carnations maintained their prices, and these blooms may become more valuable during the next few days. Liliums were firmer in price this morning. Chrysanthemums are still too numerous for present requirements, and only the best disbudded blooms and spray varieties meet with any demand; the most prominent sorts, disbudded, are Chieftain, Cheshunt White, Favourite and Monarch, with such coloured varieties as A. Brooker, Ivy Gay, Choco, Golden Glory, Liverpool Yellow, Romance, December Bronze, December Gold, Market Red and R. F. Felton. Single Chrysanthemums still retain their excellent quality, the disbudded varieties being exceptionally fine in quality, especially White Mensa, Bronze Absolute, Golden Absolute, Golden Seal, J. H. Blyth, Exmouth Pink and Jessica, and the spray varieties are the best so far offered this season. Violets appear to be on the up grade this morning, but all other lines are similar to last week's quotations. In the French department supplies are increasing almost daily and all blooms are arriving in better condition. They now include single Violets, Anemone De Caen, Ranunculus, Carmine and Barbarou—also some very fine scarlet and orange Romanos, with white and yellow Narcissi, yellow Marguerites and Marigolds. There is also a good variety of foliage, and Carnations, but there is little demand for the latter.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples—	
—English—	
—King of the Pippins, per ½-sieve ...	3 0—6 0
—Allington Pippin, per ½-sieve	2 6—4 0
—Cox's Orange Pippin, tray	3 0—6 0
—½-bushel ...	6 0-12 6
—Bramley's Seedling	3 0—7 0
—Lane's Prince Albert, per bushel ...	3 0—6 0
—Newton Pippin	3 0—6 0
—Bismarck ...	3 0—6 0
Apples—	
—Nova Scotian, Cox's Orange Pippin, ½-barrel	20 0-30 0
—B.C. Jonathan, per case ...	15 0-16 0
—Oregon Newtown... ...	14 0-16 0
Bananas, per bun.... ...	11 0-19 0
Grapes, English—	
—Alicante ...	1 0—2 6
—Gros Colmar	1 6—3 0
—Muscat of Alexandria ...	3 0—6 0
—Canon Hall...	2 0—6 0

	s. d. s. d.
Grape Fruits ...	20 0-22 6
Lemons, per case—	
—Messina ...	13 0-45 0
—Naples ...	13 0-45 0
Melons, each ...	1 6—4 0
Nectarines, per doz.... ...	4 0-18 0
Nuts, Cob, per lb.	0 5-0 5½
Oranges—	
—Cape Navels, per case ...	17 0-20 0
—Valencia ...	17 0-25 0
—Brazilian ...	18 0-20 0
Peaches, per doz.... ...	6 0-18 0
Pears, English—	
—Doyenné du Comice, per doz.	2 0—6 0
—Conference, per ½-bushel	6 0-10 0
—Californian—	
—Winter Nelis, per ½-case ...	14 0-15 0
—Buerré Hardy, per case ...	18 0-22 0
—Doyenné du Comice, per case	18 0-24 0
Pineapples, case	17 0-24 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans, Madeira	2 6—4 0
—Worthing ...	1 0—1 3
—Guernsey, per lb.	1 0—2 0
Beet, per bushel	4 0—5 0
Brussels Sprouts, ½-sieve ...	3 0—4 0
Cabbage, per doz.... ...	1 6—2 0
Carrots, per ½-bag, washed	4 0—6 0
Cauliflowers, per crate, 18's, 24's	8 0-12 0
Cucumbers, per doz.	8 0-12 0
Endive, French, per crate, 18's and 24's ...	5 0—6 0
—Batavia, per crate ...	5 0—6 0
Lettuce, Cabbage, 18's, 24's—	
—English, per doz.	1 6—2 0
—French, per doz.	3 0—4 0

	s. d. s. d.
Mint, per doz. bun.... ...	2 0—3 0
Mushrooms—	
—cups, per lb.	2 6—3 6
—broilers ...	1 0—2 0
Parsnips, per cwt. ...	4 0—5 0
Peas, Guernsey, per lb. ...	4 0—6 0
Potatos, cwt ...	4 0—6 0
—Guernsey, per lb.	0 4-0 10
—Scilly, per lb.	0 4—0 6
Tomatos, English, per box. of 12 lbs.—	
—pink, new crop	7 6—8 0
—pink and white	4 0—6 0
—white ...	4 0—6 0
—blue	4 0—6 0
—Guernsey ...	3 0—6 0
—Canary Island	16 0 22 6
Turnips, per doz. bun.... ...	4 0—6 0

REMARKS.—Trade in the fruit market is about normal for November, practically all sections reporting a weak demand. The Apple market in particular is depressed. there being a lack of movement of either English or imported Apples. The English section is being overloaded with a lot of second-grade fruits which are selling slowly at very low money, and the figures ruling for Apples from the United States are also poor. The hothouse Grapes department is receiving moderate supplies of Grapes, both from Holland and Belgium, as well as home-grown, and values are fairly steady. A sprinkling of English Doyenné du Comice Pears is available, but unless really good, these do not sell freely. Guernsey is sending some good hothouse Beans and a few Peas, both of which sell well, although prices are rather high. Some new Potatos from Guernsey, however, are difficult to sell at good prices. There are still some excellent English Tomatos coming on the market, but the competition of Tomatos from the Canary Islands is such that second-grade old crop English sell with some difficulty. Mushrooms continue a firm trade and go out freely each day. Cucumbers are still a firm market and show a further increase in price. Cauliflowers from Cornwall and St. Malo are popular and selling freely. Salads have increased in supply from France and sell well. Root crops are a slow trade, and the Potato section remains steady.

GLASGOW.

The cut flower market again developed weakness during the past week, where prices of Chrysanthemums reached the lowest levels of the season. Sprays ranged from 1d. to 6d. each, while disbudded blooms sold as follows:—Ada Brooker, 4s. per dozen (loose); 1s. 6d. for 6's, and 2s. 3d. to 2s. 6d. for 12's; In Memoriam, Pink Chieftain and Mason's Bronze, 1s. 3d. to 1s. 6d. for 6's; Phyllis Cooper and Golden Seal, 1s. to 1s. 6d.; Jean Pattison, 8d. to 1s. 3d.; Cranfordia, 9d. to 1s.; Pink Profusion, Rose Maid and Florrie King, 8d. to 1s.; W. H. Thorpe, 6d. to 1s.; Almirante and Le Pactole, 8d. to 10d.; Sandown Radiance and Blanche de Poitou, 6d. to 10d. Carnations varied from 1s. 6d. to 3s. 6d. per dozen; Roses, 3s. 6d. to 4s. 6d.; Richardias, 2s. to 4s. 6d. per bunch; Lily-of-the-Valley, 1s. 6d.; and Violets, 3s. to 6s. per dozen bunches.

In the fruit market American Apples further declined in value. Cox's Orange Pippin sold at 22s. to 25s. per case; McIntosh Red, 13s. 6d. to 14s. 6d.; Grime's Golden, fancy, 13s. 6d.; Jonathan, 12s. 6d. to 15s.; York Imperial, 25s. 6d. per barrel. Winter Nelis Pears, Block brand, realised 23s.; Washington, 17s. 6d.; South African Oranges, 150's, 25s.; Grape Fruits, 80's, 96's and 112's, 25s.; Malaya Lemons, 420's, 25s 6d.; Almeria Grapes, 14s. to 22s. per barrel; Pineapples, 4s. 6d. each; Muscat Grapes, 4s. 6d.; Gros Colmar, 3s. 6d.; Alicante, 2s. 6d. and Black Hamburgh, 2s. per lb.

A feature of the vegetable market was the early arrival of Guernsey Potatos, which realised 8d. to 1s. per lb. Scotch Lettuces made 2s. to 2s. 6d. per dozen; Cauliflowers 5s. 6d.; Guernsey Beans, 1s. 3d. box; Brussels Sprouts, 5s perhalf-pot; Mushrooms, 2s. 6d. to 3s. per lb.; field produce 2s. 10d. per chip.

WEATHER IN OCTOBER.

Under a very unusually disturbed, and frequently low, barometer, this was a month of exceptionally westerly winds, the scarcity of north-easterly, easterly and south-easterly winds being notable. A substantial rainfall was experienced, the drought being effectually terminated. No less than three-quarters of the total precipitation, however, occurred during twelve hours extending from 11 p.m. to 11 a.m.; hardly any rain fell between 1 p.m. and 4 p.m. Yet, for some obscure reason, the forenoons were more sunny than the afternoons. A wet and windy month, it was brighter than many dry and calm, but therefore hazy ones. Nor was it cold. The mean temperature was 49·9°, or 0·7° above the average; while the daily range was much below normal. There were 109 hours of bright sunshine, or an excess of 12 hours. Rain fell in measurable amounts on 26 days, or eight more than the average; the total quantity in Hesketh Park was 4·52 inches, or 0·81 inch above the local normal. Hail was reported on four days; gales on three days (but "whole-gale" force was not reached at Southport); and lightning and thunder on one day (the 25th). Ground frost was registered on five nights. A very decided rise took place in the level of the underground water. *Joseph Baxendell, The Fernley Observatory, Southport.*

GARDENING APPOINTMENTS.

Mr. Albert Webb, for the past three years gardener to LADY LEWIS, The Grange, Rottingdean, and previously for five years to the Rt. Hon. LORD ORMATHWAITE, Warfield Park, Bracknell, as gardener to the Hon. A. HOWARD, Wappingthorne, Steyning, Sussex. [Thanks for 2s. 6d. for R.G.O.F. Box.—EDS.]

Mr. J. D. McKinnon, for the past three years gardener at Dunsmore, Rugby, as gardener to Colonel L. H. HANBURY, C.M.G., Hitcham House, Burnham, Bucks

Mr. George R. Clayton, for the past five years gardener to Major J. D. BARNSDALE, Lynton Hall, Nottinghamshire, as gardener to Captain the Hon. GERALD PORTMAN, Healing Manor, Lincolnshire. [Thanks for 2s. for R.G.O.F. Box.—EDS.]

Mr. E. Wooldridge, for three years gardener to the late F. H. DRUCE, Esq., Woking, and previously for twelve years to Captain H. S. STOKES, Longdon, Rugeley, Staffordshire, as gardener to Sir CHARLES McLEOD, Bart, Woolton Hill, Newbury. [Thanks for 2s. for R.G.O.F. Box.—EDS.]

Mr. W. Wyatt, for the past fourteen months gardener to Commander C. W. MEYNELL, R.N., Burcote Brookse Abingdon, and previously for three years at Burcot, House, Abingdon, as gardener to STUART PAUL, Esq. Freston Lodge, near Ipswich. [Thanks for 2s. for R.G.O.F. Box.—EDS.]

Mr. E. R. Johnson, for nineteen years gardener to A. HEPBURN, Esq., Stone House, Reigate, as gardener to Sir CHARLES EVE, Chestnut Lodge, Horsham, Sussex. [Thanks for 2s. 6d. for R.G.O.F. Box.—EDS.]

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the past fifty years at Greenwich, 41·3°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, November 27, 10 a.m. (Greenwich time). Bar. 30·0. Temp. 46°. Weather, fine.

The Genetics of the Rose.

THE National Rose Society has rendered a valuable service to horticulture in reprinting the paper read at the International Rose Conference in July, 1928, by Major Hurst, on the Genetics of the Rose.* For it is only by close attention and repeated reading that the ordinary man not conversant with the recent rapid developments of genetical science can hope to grasp the arguments used in this most important paper. It is well worth the while of everyone interested in the breeding of plants or in the science of horticulture to study Major Hurst's work with care, for anyone who does so may begin to realise that a time is coming and that shortly when our present vagueness with respect to the nature of species will give place to precise knowledge. Already Major Hurst is prepared to tell us how many of six-hundred-and-seventy-four species, sub-species, varieties and hybrids of the genus Rosa are related one with another. The magic staff which enables the geneticist to work such wonders is, of course, the microscope. By its aid the rods or blobs constant in form and number of which the nucleus of the plant cell is composed may be seen and counted and their behaviour observed. These essential ingredients of the nucleus, the chromosomes, carry in orderly manner all those things of unknown nature which call forth the characters which distinguish one plant from another. Each one of these so called factors is responsible for some character or other—size, habit of growth, shape of leaf, kind and colour of flower, presence of stipules, hairs; no matter how small nor how great the character may be, it owes its existence to some substance carried in a definite fixed part of one or other of the chromosomes. No wonder therefore that the chromosomes of plants and animals have been and are still being subjected to the closest examination; for if current theory be true, they hide and will ultimately reveal the secrets of heredity of man and beast and flower. To follow Major Hursts account of the Genetics of the Rose it is necessary to realise that just as any cell of a plant owes its origin to the fusion of a male and a female reproductive cell, so each chromosome of a body cell is of dual nature—a paired structure, one-half of which comes from the male cell and the other half from the female cell. In the cell division which leads up to the formation of reproductive cells the halves of each chromosome separate and one half of each goes into the nucleus of one of the reproductive cells, and the other into the other. When reproduction takes place pairing of like chromosomes occurs, and hence the nucleus of the body cell appears to have double as many chromosomes as did the male or female reproductive cell which contributed to its formation. Major Hurst gives an interesting illustration of these general facts; Rosa multiflora, a Japanese Rose, has tall, summer-flowering stems, and single, white flowers. Rosa chinensis is a Chinese Rose with dwarf, perpetual-flowering stems and semi-double pink flowers. Each of these Roses has seven pairs of chromosomes in its body cells, and seven single chromosomes in its germ cells. Now other experiments have shown that the factor or gene for tall-flowering summer stems is located in a certain one of the seven chromosomes; the factor or gene for single flowers happens to be located in a second chromosome, and the gene for white flowers is located in a third chromosome. And so also it is in Rosa chinensis, for the corresponding three characters each is dependent on a gene or factor located in a given chromosome. Call these three chromosomes 1, 2 and 3. Chromosome 1 of R. multiflora mates in fertilisation with its opposite number, chromosome 1 of R. chinensis, and so in each nucleus of every body cell the paired 1-1 chromosomes carry in one half the gene for tall-flowering stems, and in the other half that for dwarf perpetual-flowering stems. The gene for tall dominates that for dwarf and the hybrid is tall, with summer-flowering stems. So, doubtless, chromosome 2 carries in one half the gene for single, and in the other half the gene for doubleness; a compromise results—the hybrid has semi-double flowers. So again, since chromosome 3 carries in one half the gene for pinkness and in the other that for whiteness, and since colour is in this case dominant, the hybrid bears pink flowers. Now let this hybrid be self-fertilised and it is easy to predict that of sixty-four seedlings there will be on the average one which exhibits *all* the recessive characters—that is, it will be a dwarf, perpetual-flowering, fully double white Rose with mixed characters of R. multiflora and R. chinensis; and this is indeed the origin of the Polyantha Pompon Rose Paquerette, raised by M. Guillot, in 1873, which introduced a new race to Roses to our gardens. It needs no further illustration to convince anyone that a thorough investigation of the chromosomes of species and varieties of Rosa, or of any other garden plant, is bound to throw yet more light on the origins of, and relations between these plants. These investigations Major Hurst has carried out with admirable skill and patience. He finds that in the genus Rosa there are six different types with fourteen (seven double), twenty-one, twenty-eight, thirty-five, forty-two and fifty-six chromosomes in the body cells. Wordsworth's little cottage maid should have been named Rosa, for she could truly say " we are seven." These chromosomes run in septets, that is, groups of seven, and throughout all the Roses there are no more than five septets—which may be called A, B, C, D, E. In the chromosomes of such septets a *different set* of genes is carried, and these genes represent collectively not less than one hundred specific, sub-specific or varietal characters. It may, therefore, be concluded that the genus Rosa of Linnaeus is composed of five fundamental species, and that all other species are derivative, that is, have been formed by combining and recombining the characters of two or more of these fundamentals. All these are diploids, that is, each of them contains two sets (*i.e.*, two septets) of seven chromosomes in their body cells. Other Rosa species are polyploid, that is, they contain more than two septets; they may be triploids with three septets, tetraploids with four, pentaploids with five, hexaploids with six and octoploids with eight septets of chromosomes in their body cells. The five fundamental species may be represented symbolically thus: Species 1, with AA septet of chromosomes; viz., R. sempervirens and all its sub-species and derivatives, among which figure the Tea Rose, Banksian China Rose, R. anemoneflora, R. cathayensis, and its offspring Crimson Rambler, R. multiflora, R. Wichuraiana, and so on. The characters distinguishing the AA septet species have been determined and enumerated by Major Hurst, who also diagnoses in like manner the other four fundamental species. Thus R. sericea and its group carries the BB septet and embraces R. Willmottiae, R. Hugonis, etc. No. 3 species—CC septet species—is R. rugosa, with sundry others less known, and also R. nitida. No. 4, DD septet species, is ranged around R. carolina, and the fifth, EE septet, is R. macrophylla. So much for a bare outline, sufficient perhaps to show how this new method is being applied to solve the age-long problem of the nature and origin of species. Those who appreciate the importance of the subject will not be deterred by the difficulties which it presents from studying the genetical method of species determination so brilliantly expounded by Major Hurst.

John Cypher Memorial Fund.—Since the publication of the previous list of contributions to the John Cypher Memorial Fund, the following amounts have been received and acknowledged:—Mr. Edgar Ingham, Saville Heath, Halifax, £1; Mr. E. T. Gilman, Rugeley, £1 1s.; Mr. W. R. Manning, Dudley, £2 2s.; Messrs. Blackmore and Langdon, Bath, £3; Mr. A. E. Usher, Blandford, 10s. 6d.; Shropshire Horticultural Society, £26 5s.; Mr. Peter Blair, Stoke-on-Trent, 10s. 6d.; Mr. Pritchard, Aldenham, 5s.; Mr. H. G. Alexander, Westonbirt, £2 2s.; Messrs. J. and A. McBean, Cooksbridge, £2 2s.; Alderman E. Wood, Southport, £1 1s.; Alderman W. H. Potts, Southport, £1 1s.; Alderman R. Sanderson, Southport, £1 1s.; Mr. J. T. Wilkinson, Southport, £1 1s.; Mr.

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* *The Rose Annual*, 1929, p. 37.

George Crankshaw, Southport, £1 1s.; Mr. D. D. Lean, Southport, £1 1s.; Mr. Percy Woodhead, Southport, £1 1s.; Mr. J. E. Hindle, Southport, £1 1s.; Mr. E. Clayton, Southport, £1 1s.; Mr. E. Hadfield, O.B.E., Southport, £1 1s.; Mr. J. H. Cross, Southport, £1 1s.; Mr. A. O. Smith, Southport, £1 1s.; Mr. E. H. Hibbert, Southport, £1 1s.; Dr. H. Coates, Southport, £1 1s.; Mr. S. E. Gent, Bradford, 4s.; Mr. J. McCartney, Bolton, £1 1s.; Glasgow and West of Scotland Horticultural Society, £5 5s.; Messrs. Dobbie and Co., Ltd., Edinburgh, £3 3s.; Alderman E. Transom, Southport, £1 1s.; and Mr. J. R. Billington, Southport, £1 1s. The Council of the Royal Horticultural Society has promised a donation of £10. Further donations will be gladly received and acknowledged by the Hon. Secretary and Treasurer, Mr. Charles H. Curtis, 5, Tavistock Street, Covent Garden, London, W.C.2.

The History of Plantation Rubber.—The *Daily Telegraph* published with its issue of November 19, an interesting supplement on the Rubber Industry, containing articles tracing the phenomenal growth in the use of rubber articles—the chief of which is the motor tyre—which has taken place in the last quarter-of-a-century. It is generally known that until thirty years ago the comparatively small amount of rubber which was used was largely from wild rubber trees, but with the development of the motor industry, special plantations have been established, mainly in the Dutch and British East Indies and in Ceylon—in the latter island, indeed, the acreage under rubber exceeds that of the Tea plantations. The story of the first importation of the seeds of Hevea brasiliensis from the forests of the Amazon by Henry A. Wickham, acting on the instructions of Sir Joseph Hooker (then Director of Kew), and of Sir Clements Markham, of the India Office, is too well-known to require more than a passing reference. The seeds were safely brought to Kew, and were distributed thence in 1876, being sent to Ceylon, Singapore, Perak, and later, to Malaya. But it was not until comparatively recent years that planting was undertaken to the extent, or in the careful and systematic way, that the modern demand for rubber has necessitated. In the earlier days of plantation, great trouble was experienced from the prevalence of malaria, but to-day, thanks largely to the genius of Sir Malcolm Watson, Malaya is wonderfully free from this scourge of the tropics. In the article entitled "Laying out a Modern Plantation," interesting details are given of the method of planting the young rubber trees on a specially prepared clearing from which the former jungle has been carefully burned away. It has been found that the maximum number of trees to the acre should be from one hundred to one-hundred-and-fifty, thinning being practised if more are planted in the first instance. As might be expected in a fertile soil, with tropical conditions, weeding is a hard and often hopeless task, and has been in many places superseded by the establishment of Leguminous ground plants to keep in check the more luxuriant jungle growths. Insect pests also abound, and fungus diseases take a heavy toll. Tapping is not commenced until after about five years of growth, the test as to whether a tree is ready being determined by the growth made. As a rule, it is safe to tap a tree which is eighteen inches in circumference at three feet from the ground.

Legacies to Gardeners.—Mrs. Margaret Lewin, of Parkhurst, Abinger Common, Dorking, who died on July 12, 1929, left £100 to Mr. Timothy Brewer, gardener.—Mr. George Thomas Hawkins, of The Rowans, Cliftonville, Northampton, who died on September 3, 1929, left £50 to his gardener, Mr. William Green.—Mr. Harry Coulby, of Ohio and the Ritz Hotel, London, who died on January 18, 1929, left to his gardener a legacy equal to the total amount of wages received while in his employ.

The R.H.S. Gardeners' Diary, 1930.—This handy diary is now available, and it is too well-known to require any further recommendation. It is published under the auspices of the Royal Horticultural Society in conjunction with the famous firm of diarists, Messrs. Charles Letts and Co., and may be obtained from the Royal Horticultural Society, from this office, or from any stationer, the price being 2s., bound in cloth cover, with pencil, or 5s. in refillable leather case, with pencil and pockets.

Honorary Fellowship of the R.H.S. for Clerk to the Gardeners' Company.—At the recent Livery Banquet of the Worshipful Company of Gardeners, Mr. Gerald W. E. Loder, the President of the Royal Horticultural Society, handed to Mr. E. A. Ebblewhite, the Clerk to the Company, a diploma conferring on him the Honorary Fellowship of the R.H.S. in recognition of his long services as Clerk. The Master of the Company, Mr. Edward N. Sherwood, of Messrs. Hurst and Son, presided over the Banquet.

M. Joseph Bol.—A well-to-do business gentleman and President of the Syndical Chambre of Manufacturers of Mechanical Music, M. Joseph Bol nevertheless devotes considerable time to horticulture and is an enthusiastic amateur. In 1927, he founded the Belgian Chrysanthemum Society, which held its first exhibition in 1928, and an admirable second one during the present year, as reported in *The Gardeners' Chronicle* of November 2, p. 354. M. J. Bol finds that a large measure of the happiness of life results from service to others, and so we find that he is treasurer of the Belgian Royal Federation of Horticultural Societies, and occupies a similar position in the Belgian Fleurie, which has for its aim the horticultural improvement of every town and village in his country during the coming year, when Belgium will celebrate the centenary of her independence. M. Bol's slogan is "Flowers and still more flowers, and gardens for everyone."

M. JOSEPH BOL.

Rock Garden Society.—The first General Meeting of the Rock Garden Society will be held in the new hall of the Royal Horticultural Society, on Tuesday, December 10, at 3 p.m. The business of the meeting will be to appoint the officers and set out the objects of the Society and to arrange the date for the Society's first show in 1930. All interested in the cultivation of alpine plants are invited to attend.

Horticultural College, Swanley.—The Annual General Meeting of the Horticultural College, Swanley, was held on Tuesday, November 19, at 29, Bryanston Court, W.1, at 4 p.m. Lady Falmouth, the Chairman, in moving the adoption of the Report and Accounts, referred to the recent developments at the College. A new dairy had been built and the College was now fully equipped to give instruction in modern methods of production of clean milk, and in the making of butter and cheese. A new herd was being built up of tuberculin-tested animals suitable for the production of Grade A milk. Lady Falmouth mentioned further developments which were now contemplated if sufficient funds could be obtained. The enlargement of the Staff House and the rebuilding of the range of conservatories were really urgent, she said. She also referred to the great need for more scholarships to meet the demand of students who were anxious to obtain a horticultural training, but could not do so without financial help. The meeting closed with a vote of thanks to the Chairman, proposed by Sir William Lobjoit and seconded by Miss Cohen.

Retirement of Mr. W. Warnaar.—One of the best-known personalities in the horticultural world of Holland is Mr. W. Warnaar, the head of the bulb-growing firm of that name which has such extensive fields just outside Haarlem. He has interested himself in horticulture, and done his utmost to secure its progress in his country, in every possible way, and is deservedly famous far beyond the confines of Holland. He has, however, lately come to the conclusion that it is time to retire from some of his many activities and take more rest than he has hitherto been able to do, and this decision was celebrated on November 4 by a large gathering of his friends at the Krelage Building in Haarlem. Thirteen horticultural societies were represented, and Mr. Warnaar was received, with his family, by Mr. E. H. Krelage, who spoke warmly of the excellent results which had been brought about by his guest's work and enterprise, and presented him, on behalf of those present, with a writing table and chair. Other speeches followed, and Mr. Warnaar then replied, expressing deep gratitude and appreciation for these marks of the esteem in which he is held. His decision is doubtless a wise one, but it will be long before his place can be adequately filled. We should like to join with his other friends in wishing him many long and pleasant years in which to enjoy his well-earned rest.

Habenaria Lugardii.—Major E. J. Lugard writes: "On page 333 of your issue of October 26, in reporting on the R.H.S. Fourth Autumn Show, you refer to Habenaria Lugardii as an 'extremely interesting and distinct Orchid collected in the Congo region.' Habenaria Lugardii (Fig. 156, page 338) was discovered by me in the Botletle Valley, Ngamiland, South-central Africa, in 1898, and was presented by me to the Royal Gardens, Kew, in February, 1899. It is fully described in the *Flora of Tropical Africa*, Vol. VII, p. 228, and is beautifully illustrated in the *Botanical Magazine* of October 1, 1901. It was previously referred to in *The Gardeners' Chronicle* in 1900, Vol. II, p. 322. It would be interesting to know if it has since been discovered in the Congo."

Fastigiate and Pyramidal Trees.—Some interesting observations and supplementary remarks by the Hon. Vicary Gibbs on Mr. W. J. Bean's article on "Fastigiate and Pyramidal Trees," which appeared in the Kew *Bulletin of Miscellaneous Information*, No. 4, 1929, and was subsequently reproduced in *The Gardeners' Chronicle*, appear in the current issue of the Kew *Bulletin*. The author confirms Mr. Bean's statement that nearly every common tree has a fastigiate form, but, whereas Mr. Bean's exceptions included the Ash, the Lime and the Sycamore, the last-named is the only one of which the Hon. Vicary Gibbs has not discovered a fastigiate form. He found a fastigiate form of the Ash in Mr. Trotter's grounds at Leith Vale a year or two ago, and has this year succeeded with a few grafts of it; he states that the boughs of this Ash turn up vertically, but it is not narrowly fastigiate and is therefore not so effective as the Hornbeam of similar aberrant form. At Aldenham there is a fastigiate Lime—Tilia platyphyllos var. pyramidalis—which is now a shapely pyramid about twenty feet high and doing well. The unique Elm mentioned by Mr. Bean as growing at Aldenham, was blown down about a year ago, but some of its growths were preserved and grafted successfully. Mr. Gibbs states that Bolles' White Poplar, praised by Mr. Bean, is a dismal failure in the heavy soil at Aldenham: its branches keep dying back, and in self-consolation it produces suckers over a wide area, with the result that it is not regarded with favour. Alnus glutinosa var. pyramidalis, omitted by Mr. Bean, is included in the Aldenham collection, and stated to be well worth growing, being of very neat and compact habit; an excellent illustration of this fastigiate Alder accompanies the Hon. Vicary Gibbs' notes. He has two plants of the pyramidal Spanish Chestnut, originally suckers from the original tree at Mount Mascal, and besides the two forms of Robinia Pseudacacia mentioned by Mr. Bean, there is at Aldenham a third—R. p. var. inermis fastigiata—a quite distinct and striking form. The upright-growing form of Ulmus montana is decidedly decorative when its growths are trimmed in fairly closely, while another Elm at Aldenham, U. nitens var. umbraculifera gracilis, although not strictly a pyramidal tree, forms a neat bush of thin growths, with no central stem and all nearly vertical, in appearance like a mason's mallet, about fourteen feet high and twelve feet through. In form it is somewhat like Carpinus Betulus var. pyramidalis. There is also at Aldenham an exceedingly narrow form of the Irish Yew, called var. columnaris. Other plants omitted from Mr. Bean's account include a very narrowly upright form of the Scots Pine, growing at Glasnevin, and of which the Hon. Vicary Gibbs has a grafted plant now about eight feet high; two very narrow forms of Juniperus chinensis—the green one, and that known as Young's Golden Juniper; and a narrowly-upright form of Cedrus atlantica. Pseudotsuga Douglasii var. pyramidalis, now ten feet high at Aldenham, is another addition to the list of fastigiate Conifers. Mr. Gibbs suggests that Betula pumila var. fastigiata should be included, and also considers that Amelanchier florida is certainly either fastigiate or pyramidal. He states that some of the cultivated Pears, such as the variety Charles Ernest, are undoubtedly fastigiate in form; also the Crab Apple, Pyrus Malus var. magdeburgensis. He concludes his notes with mention of two fastigiate forms which, although not attaining the dignity of trees, are worthy of mention. The first of these is Sambucus nigra var. fastigiata, suggested as a useful subject for planting in small gardens to block out unsightly buildings, etc., as it makes a very solid column and is rapid in growth. The second plant is the narrow form of Aralia chinensis, which has the advantage of taking up less room than the type, but has the disadvantage of suckering too freely. In his acknowledgment to Mr. Vicary Gibbs, Dr. Hill mentions a fastigiate form of Populus tremula, which was pointed out to him by Professor R. E. Fries during a visit to the Hortus Bergianus, Stockholm, in July.

Preservation of Wood.—At the invitation of Sir Harold Boulton and Sir James Calder, a meeting is to be held at 3 p.m. on December 3, at the Hotel Metropole, Northumberland Avenue, W.C.2, to discuss the formation of a Wood Preserving Association. The Association has as its chief object the prevention of wastage of wood caused by neglect to use proper means of preservation against rot and the attacks of insects. Although it has been customary for many years in the United Kingdom to use protectively treated wood for railway sleepers, telegraph poles, piles and fencing posts, those who are interested in the formation of the association feel that this practice should be extended to wood used for many other purposes, such as fences, all manner of buildings, wooden structures, wagons, etc., not only in the United Kingdom, but throughout the world, in order to preserve timber resources, especially those of the British Empire. It is proposed that the Association should examine the cause of destruction or deterioration of wood and investigate all the processes or methods used or suggested for its protection. In the United Kingdom the activities of the Association will be particularly directed towards the prevention of waste of home-grown timber in order that home forestry may be assisted. The Association hopes to co-ordinate practical and commercial research in all parts, in which task it will receive the co-operation of His Majesty's Forest Products Research Laboratory at Princes Risborough. It will also give close attention to the matter of specifications for wood preservatives and adherence thereto. Lord Clinton, accompanied by other Forestry Commissioners, will attend the meeting. His Majesty's Post Office and the four Railway Groups will be represented. Representatives will also attend from the principal timber preserving interests in the country, from many timber firms, from the Timber Trade Federation, from many estate owners, and from among those interested in forestry or in the manufacture of timber preserving preparations. It is hoped that anyone interested in wood preservation who may not have hitherto received notification of the scheme to form a Wood Preserving Association will at once apply to Sir Harold Boulton, 166, Piccadilly, W.1, for an invitation to the meeting on December 3.

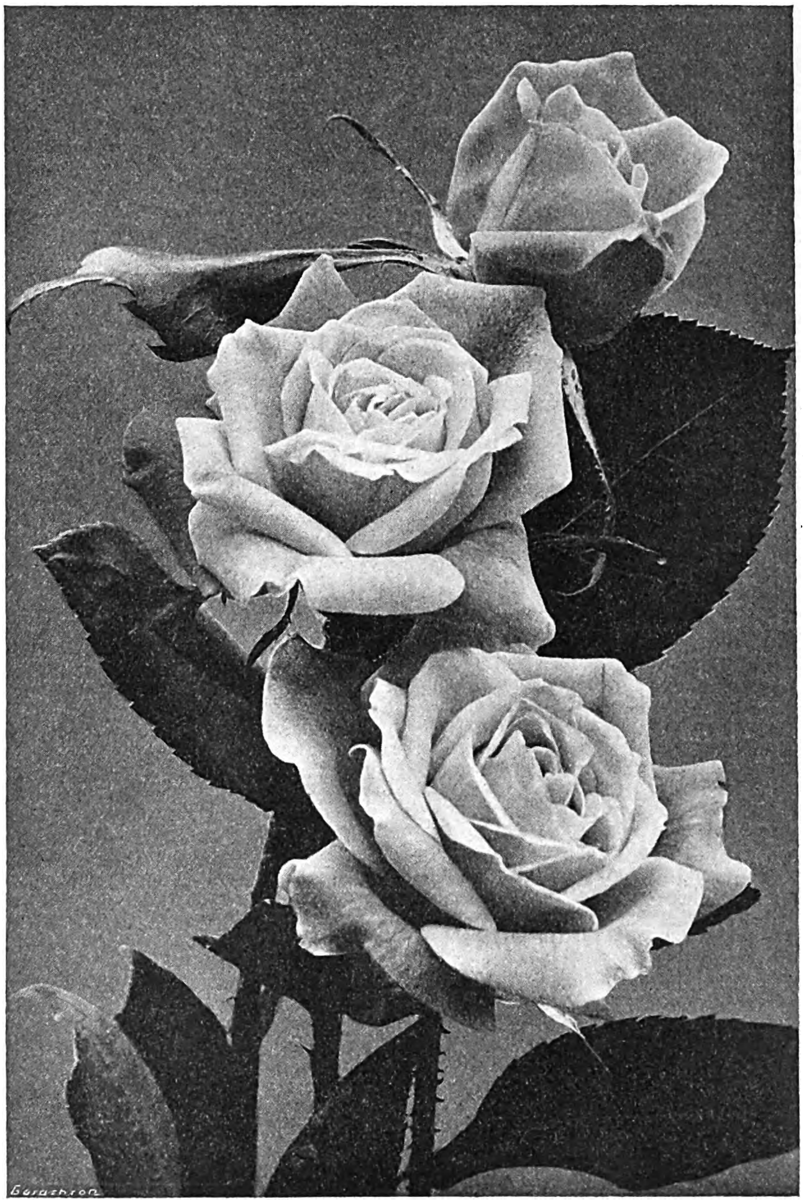

FIG. 193.—ROSE AUTUMN.

R.H.S. Award of Merit, November 19. Flowers yellow and rose. Shown by Mr. C. Engelmann.
(see p. 412.)

Appointments for the Ensuing Week.—MONDAY, DECEMBER 2: Derbyshire Horticultural Association's meeting; National Chrysanthemum Society's Floral Committee meets. TUESDAY, DECEMBER 3: Royal Caledonian Horticultural Society's meeting. WEDNESDAY, DECEMBER 4: National Carnation and Picotee Society's meeting; Wimbledon Gardeners' Society's meeting; Rotherham and District Horticultural and Chrysanthemum Society's meeting; Gainsborough Allotment Holders' Association's meeting. THURSDAY, DECEMBER 5: Bideford and District Horticultural Society's meeting; Portsmouth Horticultural Society's lecture. FRIDAY, DECEMBER 6: Dundee Horticultural Society's lecture. SATURDAY, DECEMBER 7: Leeds Paxton Society's Open Exhibition Night.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Frigi Domo.*—After two winters' experience of this material as a protection from frost, I have come to the conclusion that it is the best covering for pits and frames which ever came under my notice. It will keep out more frost than two mats, while it only costs the price of one; it is more tidy than loose litter, and fits more closely than straw hurdles, and it is much more manageable, for when fitted on to a roller end-ways, covering and uncovering can be effected in half the usual time, and there is no danger of breaking the glass. In wet weather it lies quite close to the glass, but so soon as frost sets in it becomes almost as tight as a drum, thus forming a space between it and the glass, a thing very desirable where the edges fit tightly, which they do. I believe that any greenhouse plant is perfectly safe under it until the thermometer indicates 10° of frost. *J. Rust, Broom House, Fulham. Gard. Chron., December 2, 1854.*

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Duckyls Park, East Grinstead, Sussex.

The Cattleya House.—The autumn-flowering kinds of the large group of plants accommodated in this house, make a gorgeous display of colour at this season; the varieties are too numerous to enumerate, or treat separately, many new and good sorts being introduced every year. As the plants pass out of flower the old flower spikes and sheaths should be removed by severing both so closely as possible to the pseudo-bulb without injuring it; if left on the plant, these will often collect moisture which may set up decay in the leaf and psuedo-bulb. It is advisable to sprinkle a little powdered charcoal on the cut surface to prevent decay. At this stage the plants should be placed in a light and well-ventilated position, and kept slightly drier at the roots than when bearing flowers, sufficient moisture only being given to keep the roots healthy and the pseudo-bulbs in a plump condition. The compost should be allowed to dry well between each application of water. This partial rest should enable the plants to recuperate, and they should grow vigorously in their proper season. As the plants of the late winter and spring-flowering varieties complete their growths, water should be afforded sparingly, only sufficient being required to keep the roots fresh and the pseudo-bulbs plump. When the flower buds are seen growing up in the sheaths, an increased supply will be needed to assist in their full development. Plants that are making secondary growths should be given a light and warm position to assist in building up the pseudo-bulbs so soon as possible.

Lycastes. — Various members of this well-known genus, notably L. Skinneri and its varieties, and the hybrids of L. Balliae and L. Lucianii and others, are now completing their season's growth and flower buds should soon be showing at the bases of the new pseudo-bulbs. Lycastes require plenty of water at the roots during the growing season each time the compost becomes dry. At this season somewhat drier conditions should be maintained, although the plants should not be allowed to shrivel through lack of moisture. Under these partial-resting conditions a larger quantity of blooms may develop at one time. When flowering has finished only sufficient water is required at fairly long intervals to keep the plants in a plump condition. These Lycastes grow well in the cool house during the summer months, but it is advisable to remove them to slightly warmer and drier conditions, with plenty of light, at this season. Similar cultural treatment should be afforded the fragrant L. aromatica, also L. candida var. Lawrenceana and L. Deppei, while the white-flowered, night-scented L. lanipes, together with the free-flowering L. Barringtoniae, and the distinct, L. leucantha, require an intermediate temperature all the year round. The large, mealy scale which often attacks Lycastes on the undersides of the leaves should be removed by careful sponging with soapy water when detected. The flowers of Lycastes last for many weeks, and weak plants should have their flowers removed at an early stage, or they may become exhausted.

Mexican Laelias.— Members of this group of graceful-flowered Laelias, notably L. anceps and its numerous varieties, together with L. Gouldiana, are now developing flower buds at the tops of the long, slender stems, while the blooms of the fragrant Laelia autumnalis are now fully expanded, and these should last a long time if kept in a fairly dry atmosphere. The gummy substance exuded around the buds of plants of this group of Laelias should be carefully removed by gently passing a wet sponge over the buds in an upward direction; if allowed to remain it often prevents the blooms expanding. When in bloom the plants should be afforded drier atmospheric conditions than was required during the growing season, and they should also receive so much light as possible, in a position where the long spikes will be free from contact with the roof-glass, otherwise the blooms may be seriously damaged. Sufficient water should be given to the roots to allow the flowers to develop, and after the flowers have been removed, the development of the pseudo-bulbs being already completed, very little water at fairly long intervals should suffice to keep the pseudo-bulbs plump, but in a dormant state, until the early spring months; at which season new roots should be produced from the base of the new pseudo-bulbs and any necessary repotting may be done safely. Water should be given very sparingly until the new roots have obtained a good hold of the new compost of fibre and moss. Plenty of fresh air should be admitted to these Orchids on all favourable occasions. The white varieties of L. anceps are mostly robust growers, but unless the growths are well ripened they fail to produce flower spikes. The past summer has been favourable to the development of these Laelias, as they revel in sun-heat. These white-flowered forms are usually a few weeks later in flowering than the coloured forms, and should be seen at their best early in the New Year. Scale insects increase rapidly under the drier conditions, and these should be removed by sponging so soon as detected.

HARDY FRUIT GARDEN.

By HENRY H. COOK, Chief Assistant Lecturer, Reading University Horticultural College.

Apple and Pear Trees in Borders.—Bush or pyramid Apple and Pear trees growing in the borders of the kitchen garden should be pruned early, in order that the necessary preparation of the soil for spring cropping may be carried out. Trees which have carried heavy crops of fruits this season, and those which are making poor and stunted growth, should have the surface soil removed to a depth of several inches and to the outward spread of the branches. A dressing of bone-meal, two handfuls to the square yard, and half that quantity of sulphate of potash should then be pricked lightly into the soil among the roots, and a top-dressing given of a mixture of equal parts of good, turfy loam and well-rotted farmyard manure, the whole being made very firm by treading. Pears are more commonly grown as pyramids than as bushes, owing to the natural habit of the trees favouring that form; the pruning of these at this season corresponds generally with that practised for Apple trees, but the pruning should cease gradually from about the eighth year, when the framework of the tree has been formed. Thereafter, little or no pruning will be needed, beyond the removal of water-shoots, or an occasional thinning of the branches as the tree advances in age. Young standard trees that were planted last season should have their stakes and ties examined and made good, and where there is a risk of hares or rabbits gaining access to the garden during severe weather, the stems of all young fruit trees should be protected with wire-netting.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Chrysanthemums.—As these pass out of flower the plants required for stock purposes should be selected, and stood in a light position either in frames or in a cool fruit house where plenty of light and air is available. Under these conditions a supply of strong, sturdy cuttings should be forthcoming; guard against attacks of mildew and aphis. Some varieties are very shy in producing cuttings, and these should be shaken out, potted in fresh compost and placed in a warm house.

Propagating Chrysanthemums.—Certain varieties of Chrysanthemums that are grown to produce large exhibition flowers demand a long season of growth. These include such popular sorts as W. Rigby, Mrs. G. Drabble, Majestic and its sports, Victory, Queen Mary, Princess Mary, Mrs. J. Gibson and Miss Ada Ellis; and with these early propagation is essential. The cuttings may be inserted singly in small sixty-sized pots, or three may be inserted in larger receptacles. Where space is limited the latter method may prove more convenient and provided the young plants are potted on singly so soon as roots are well-formed, plants equally as good as those rooted singly should be obtained. The receptacles should be filled with light, open soil which should not be made too firm, and when the cuttings are inserted water should be given immediately to prevent the cuttings flagging. It is a great mistake to attempt to root Chrysanthemum cuttings in strong heat, for this will probably only end in failure. A temperature of about 50° is desirable. The cuttings should be placed in a propagating case, and the lights removed for a short time each morning to allow the condensed moisture to evaporate. When the cuttings are rooted they should be gradually inured to the light, being placed near the roof-glass.

Lilium longiflorum.—Newly imported bulbs of this Lily, commonly known as L. Harrisii, should be potted so soon as they arrive, for it is not advisable to allow the bulbs to remain out of the soil for any length of time after their arrival. A light, open compost is best for most Lilies, and after being potted they should be placed in a frame from which frost can be excluded, until root action takes place. By introducing these Lilies into heat at intervals they may be had in flower over a considerable period, but much will depend on the treatment meted out to them. If grown under cool conditions, care should be taken when applying moisture to the roots. Liliums that have been grown in pots for a season, such as L. auratum, L. speciosum var. album and L. s. var. rubrum, and others, should, if desired, be repotted. When potting stem-rooting Lilies, leave sufficient space in the pots for top-dressings during the growing season.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to Colonel SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Late Vineries.—Late houses in which ripe Grapes are hanging cannot be kept too cool and airy during mild, dry weather; a temperature of 50° is safe for all black Grapes, but Muscats may have a little more heat. The fall of the leaf is a trying time, especially in low structures; damp may be counteracted by collecting the leaves, covering the borders, warming the pipes, opening the ventilators on fine days, and keeping the house closed when the external atmosphere is heavily charged with moisture. Houses in which only a few bunches of Grapes are hanging may now be cleared with advantage to the fruit and vines. When cutting Grapes before the leaves fall, the latter should be left on to ripen and drop.

Cucumbers.—If fermenting leaves are used for producing or supplementing the bottom-heat, the syringe will hardly be needed. Plants in bearing may receive doses of weak, warm liquid manure at a temperature of 80° to 85°, but unless later plants are weak, pure water should maintain healthy growth of medium vigour on these, which should then not be affected by bad weather. Important points in the management of Cucumbers at this season are—cleanliness, and the husbanding of the strength of the plants by the removal of all young shoots not likely to be required, especially where the demand for fruits will be greater from the beginning of January onwards. Present supplies should be obtained from old or early autumn plants, which should be discarded when the real winter plants come into bearing from January to March. This may be accomplished by going carefully over the plants once or twice a week; by judicious stopping and thin training of the growths; by maintaining a moist bottom-heat of 75° to 80°; avoiding dry fire-heat and allowing the night temperature to range so low as 65° after nightfall. Insect pests nearly always find their way into Cucumber houses, especially if the plants are weak and unhealthy, and the best means of guarding against this is to insure cleanliness and avoid any attempt at crowding the plants. A circulation of fresh, warm air should be maintained whenever possible. If the plants are kept healthy and the fruits are grown quickly and cut when young, the bitter taste so frequently complained of in winter Cucumbers should be entirely absent.

Pot Cherries.—If the earliest trees have not been housed, no time should be lost in getting them cleansed and protected from severe frosts. If the weather is moist and mild, all the ventilators of the house may be left open night and day until the buds show signs of swelling. The roots, too, will require plenty of water, especially if pot-bound, as all stone fruits should be for early forcing. Trees planted out in inside borders require similar attention as regards a supply of fresh air. A good soaking with water at a temperature of 70° when the trees are started and the buds are on the move, is a great help. Plum trees for early fruiting require similar treatment to that advised for Cherries. Very old trees which seldom make any strong growths should never feel the lack of water, and this applies also to trees growing in narrow borders against the back wall of a lean-to house. If Cherries or Plums prepared in the open borders are well set with buds, they may still be lifted and potted, but they should not be forced.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Cold Frames.—Those containing cuttings of bedding plants now require careful attention. Frosts may be expected at any time, therefore protecting material should be in readiness for covering them when required. During the short, dull days of winter it is essential that these half-hardy plants should have a free circulation of air on every favourable occasion. Dampness and decaying leaves are much more destructive than cold, therefore all frames should be examined at least once a week, the decayed leaves removed, and the soil gently stirred on the surface. By doing this, and admitting ample air during mild weather, the loss of plants during winter may be minimised.

Pleasure Grounds.—At this time of year it is difficult to keep pleasure grounds tidy, if the presence of falling leaves can be called untidiness. It is certainly necessary to remove these from gravel paths that are in constant use, otherwise they make walking unpleasant during wet weather, and also ruin good paths if allowed to lie and decay on them. Where the leaves have gathered to any depth on lawns they should be collected or they may destroy the grass, but the general cleaning up may, with advantage, be left for a few weeks yet.

Berried Shrubs and Trees.—If there is any truth in the old saying that a hard winter follows a profusion of berries, we are likely to have some severe weather before us, as a large number of the berry-bearing trees and shrubs are freely fruited this year. In the case of the Holly and Hawthorn it is remarkable, the trees being laden with fruits, but the profusion of berries is not confined to these alone; the different species and varieties of Pyrus, Berberis, Rosa, including the common Briar, are bearing exceptionally heavy crops this year. Although December is not looked upon generally as a good month for planting, any of these deciduous trees or shrubs may be planted during open weather when the ground is in a dry, friable condition.

Subjects for covering Banks, Old Trees, etc.—Steep banks, old dilapidated trees, etc., may be made beautiful by being planted with flowering subjects. Among rambling plants for such a purpose are Clematis montana, C. m. var. rubens, C. Flammula, C. tangutica and many of the strong-growing climbing Roses. For a moist, shady spot, Tropaeolum speciosum is a desirable climber, as when once established it grows vigorously, making a brilliant display all the summer with its bright scarlet flowers. On some soils this plant is difficult to establish, and it is advisable to prepare the sites by removing at least a foot of soil and filling up with a compost of gritty soil; shade and coolness at the roots are essential conditions to its success.

Wall Plants.—In a few instances plants on walls were badly damaged last winter and if any gaps still exist now is the time to fill them. Free-flowering plants rather than those of an evergreen nature, should be chosen for this purpose. Before replanting make sure the soil in the border is in good condition, as but little renovating can be done after the plants become established, especially if the borders are narrow. A few subjects that should give satisfaction and require very little attention are Abutilon megapotamicum, Lippia (Aloysia) citriodora, Berberidopsis corallina, Ceanothus divaricatus, C. rigidus and C. Veitchii, these three evergreen Ceanothuses being very suitable for walls facing south or west; Escallonia exoniensis, and E. rubra; Passiflora coerulea, which produces an abundance of drooping mauve flowers, and its white form, P. Constance Elliott; Solanum crispum, a quick-growing plant producing an abundance of bright blue flowers if grown in a warm, sheltered corner; Tecoma radicans, Chimonanthus fragrans and Cestrum (Habrothamnus) elegans.

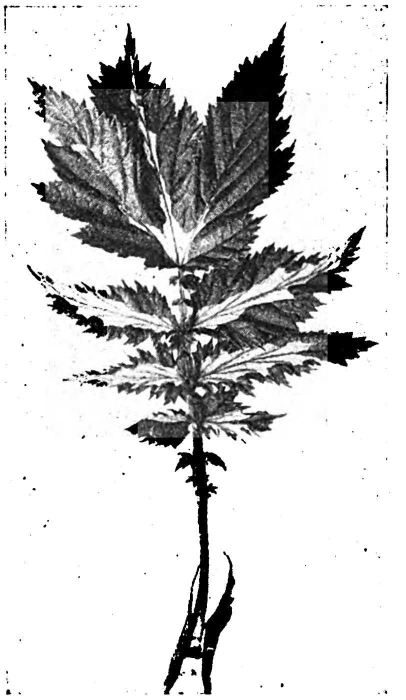

FIG. 194.—SPIRAEA ULMARIA VAR. AUREA.

(see p. 424.)

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Forcing Rhubarb, Seakale, etc.—A few clumps of Rhubarb, also crowns of Seakale and Chicory, may now be introduced into the forcing house. A brisk bottom-heat should be maintained to encourage quick growth, and a steady house temperature of about 60° should be found most conducive to good development. Endive plants may be placed in boxes in the forcing house to bleach them. They should be watered with care, as Endive is very liable to damp off quickly in a warm temperature if afforded an excessive amount of moisture.

Frames.—Carrots, Lettuces, Endive, Cauliflowers, etc., growing in frames should be inspected carefully on a dry day, and have all dead leaves removed. The surface of the soil about the plants should be stirred with a small hoe, and the frames should be ventilated with care. Any loose or broken panes of glass in the lights should receive attention, as the drip of water from these during wet weather is liable to prove very injurious to the plants growing beneath them, causing them to damp off and decay.

Tomatos.—Late Tomato plants growing in pots which were moved under glass a few weeks ago, are now carrying good and valuable crops of fruits. The leaves may be shortened, and if any side growths appear they should be pinched off; the terminal growth should also be stopped if this has not already been attended to. A dry atmosphere and a temperature of between 55° and 60° should be maintained, and careful watering practised. Liquid manure, in the form of a solution of Clay's fertiliser, should be given at intervals of about ten days to assist the swelling and colouring of the fruits.

Cucumbers.—Late Cucumber plants which are now coming into bearing need very careful attention to watering and thinning out the surplus growths. See that the plants obtain so much light as possible, and so regulate the growth that there is no overcrowding. A steady temperature should be maintained.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Lawns.—In most cases lawns are greatly improved by an annual dressing of sand, and on heavy land this is almost essential if a good firm surface is to be maintained. Good sharp gritty sand is best, and if applied now it becomes so well embedded in the surface that no trouble is experienced in cutting the following year. If lawns are very soft and hold the water, draining should be carried out, or the existing drains attended to. Shallow drains eighteen inches below the surface, and not more than twelve feet apart, should prove satisfactory in bad cases, while they may be slightly deeper and wider apart where better soil conditions obtain. If the surface of the lawn has become too solid, it should be pierced all over with an instrument made for the purpose. Any weeds, such as Daisies, Plantains, or other broad-leaved weeds, should be removed with a "spud," and moss cleaned off with a close-toothed rake. Manure for lawns are more economically applied in spring, just before growth commences.

Fan-Trained Apples and Pears.—As these differ somewhat from Plums and Cherries, which were dealt with last week, a few notes on their pruning may not be out of place. The extension system of training is applicable to both, but not so necessary as with stone fruits. The leading shoots may, in many cases, be found to have one or more fruit buds at the top, so that they should be cut back to a wood bud if further extension is necessary. Provided the spurs are kept short by periodical removal as they elongate, it is possible to retain the same branches in good fruiting condition for many years, which, of course, is important.

Ground for Potatos.—When quality, combined with a reasonable crop of Potatos, is wanted, as apart from mere bulk, some consideration is necessary in preparing ground that is heavy and cold. A plot of medium loamy soil which has been well enriched with farmyard manure for the previous crop should be chosen, if possible, and should be well exposed to the sun for the greater part of the day. This should be trenched or double-dug, according to its depth and the quality of the subsoil, so early as possible. Leave the surface rough or laid up in ridges as desired. Manure should only be added to the soil if poor, and then only light, partly decomposed manure should be employed, working it well in as the work proceeds.

Lily-of-the-Valley.—A few boxes should be filled with turves cut where the crowns are thickest in the bed, and kept in readiness for forcing as required. Another method is to select the three-year-old crowns and pot them, re-planting the younger crowns in well manured and deeply-dug cultivated ground, in a partially shaded corner not too much in evidence during summer.

TREES AND SHRUBS.

JUGLANS CINEREA.

I have, this autumn, greatly admired the brilliant colouring displayed by the Butternut, Juglans cinerea. The display was, admittedly, not long-lived, but of the most beautiful shades of orange-scarlet, so that a specimen or two in a hillside wood were strikingly lovely.

The insignificant greenish flowers of this species are succeeded by rather small, oblong-ovate nuts, tapering to a point, slightly downy and covered with small, transparent glands of viscid matter; they are pendulous, on flexible peduncles.

J. cinerea has for long been known in gardens, as it was introduced from North America in 1656, and is figured in *Bot. Mag.*, t. 247.

Some large examples of Crataegus Crus-gallii var. ovalifolia close to the Butternut, maintain some fine colouring for a considerable period, and the background to this effective planting is well provided by Norway Maples. *Ralph E. Arnold.*

PACHYSTIMA CANBYI.

Those who like uncommon shrubs, especially dwarfs which enjoy peaty soils and woodland conditions, will find this an interesting subject. A native of Virginia and north Carolina where, however, its range is curiously limited, Pachystima Canbyi is a lowly, compact evergreen, normally under one foot high, with an inclination to a semi-procumbent habit. The small, narrowly oblong leaves, which have decurved margins, are usually less than an inch in length and of a rich glossy green. The leaf axils become tufted with small, greenish blossoms in summer, but neither these nor the fruits, which I have never seen, are of any ornamental value. This is a shrub, as I have stated, for those who appreciate out-of-the-way things, and who have the right conditions.

I have grown P. Canbyi for a good many years among Gaultherias, Ledums and other plants of the kind. Its green is always cheerful, it takes care of itself, and makes a pleasant, non-interfering companion for its associates. I have never known this little shrub to be affected by frost. The finest specimen I have ever seen was in the late E. C. Buxton's garden, at Bettws-y-Coed. It was growing in a peaty crevice between slaty rocks and was about eighteen inches high and at one time two feet across. It was, I believe, at least twenty years old. *A. T. J.*

LEDUM LATIFOLIUM.

In our gardens, the small genus Ledum is generally represented by but two species, namely Ledum latifolium, the Labrador Tea, and L. palustre, the Marsh Ledum, both extremely hardy evergreen shrubs of low stature from the far north.

Of the two, L. latifolium is by far the most attractive and should be given preference where a choice has to be made, for it forms a compact bush of good form, is a handsome evergreen and is also effective when in bloom from late April to early June. It delights in peaty soil and partial shade, and may be associated with Azaleas, Kalmias, Vacciniums and other peat-loving subjects in the wild garden.

L. latifolium grows to about two-and-a-half feet high, and as much or more across, the bush being compact and rounded, and usually flattened at the top. The leaves are dark green and covered with rust-brown felt beneath, half-an-inch to two inches in length, and from a quarter- to half-an-inch in width, narrowly oblong or oval in shape, and with recurved margins.

The leaves of L. latifolium are stated to possess various medicinal properties. A decoction made from them is stated to be useful in the treatment of coughs, colds, bronchial and pulmonary troubles, and it is also recommended for external applications in the treatment of various skin troubles. The leaves, when bruised, emit an aromatic odour.

L. latifolium produces its blooms abundantly and regularly, in terminal, rounded clusters two inches or more in diameter, each flower being nearly half-an-inch across, creamy-white in colour, with protruding stamens which impart to the flowers a star-like effect.

It is common throughout northern America, including Greenland—hence its synonym, L. groenlandicum—and was introduced to cultivation in 1763. It is not uncommon in gardens, and may be increased by seeds, treated in the same way as are other small-seeded, Ericaceous shrubs; by cuttings, or by layering. There is a named variety of it, L. l. var. compactum, which has very woolly stems, smaller flower clusters, and short, broad leaves, and it is of dwarfer habit.

The Marsh Ledum, L. palustre, is a dwarf evergreen of thin and spreading habit, with narrow, linear leaves and clusters of flowers similar to those of L. latifolium, but with more stamens; it is found in the cold regions of North America, Europe and Asia, but is not a native of Britain. There are two varieties of note, var. dilatatum, with broader leaves, and var. hypoleucum, with white, woolly covering on the underside of the foliage.

The very desirable Sand Myrtle, Leiophyllum buxifolium, a low-growing evergreen shrub, with attractive pinkish flowers, red in the bud, was at one time commonly grown under the name of Ledum thymifolia, and was even figured in the *Botanical Magazine*, t. 6,752, under this name. It is closely related to Ledum, but is considered sufficiently distinct to merit generic rank. It is a grand subject for associating with Heaths. *M. W.*

HARDY FLOWER BORDER.

LYSIMACHIA CLETHROIDES.

The genus Lysimachia shows considerable variation in the characters of its members, some of which are dwarf and creeping in habit, as for instance, that old cottage garden favourite, the Creeping Jenny, L. Nummularia, while others are erect growing, herbaceous perennials. The majority of them have yellow flowers, but some have white blooms, and among these the handsomest is L. clethroides, in fact, this is probably the most strikingly decorative member of the genus. For not only is it very attractive, in habit and blossom, but in autumn its dying foliage often becomes richly tinted, thereby adding greatly to its decorativeness.

L. clethroides is an effective subject for the herbaceous border or, like some of the erect-growing, yellow-flowered species, it may be employed for furnishing the margins of ponds or streams, in bold groups, for it delights in a moist root-run and well-cultivated and enriched soil.

A native of Japan, it is perfectly hardy in this country and a free-growing, herbaceous perennial, spreading freely by means of underground growths, so that it should be so placed as to not endanger or encroach upon less vigorous and possibly more choice subjects; it is best lifted and replanted every third or fourth year, as unless attended to in this respect it deteriorates and becomes stunted, thereby losing much of its charm and gracefulness.

Its average height is between two and two-and-a-half feet, although sometimes it exceeds this. Of bushy, compact habit, it produces from July until late September, or even on into October, long, dense spikes of pure white blossoms, the upper portions of the spikes being bent over and curled downwards. This white-flowered Loosestrife does not object to partial shade and is, therefore, especially useful for such positions. It is a first-class herbaceous plant for late summer and autumn effect.

ACONITUM WILSONII.

There are now quite a large number of species of Aconitum, and forms of Aconitum Napellus, the common Monkshood, cultivated in gardens, but perhaps the handsomest of them all is A. Wilsonii, a comparative newcomer from China, yet already popular in many gardens.

It is a free-growing plant, forming a mass of dark foliage from among which arise the stout flower stems to a height of five feet or so, forming loose spikes, graceful in spite of their magnitude, of large, deep violet flowers carried on slender stems, the whole forming a grand and imposing column of bloom during late summer and early autumn.

A. Wilsonii is a very effective subject for the large herbaceous border, or it may be employed to great advantage by the waterside, where it may be planted in bold groups and left undisturbed for a number of years. It does not object to light shade and is, therefore, suitable for planting in open woodland.

Wherever A. Wilsonii is planted, the ground for it should be well prepared if it is to give of its best, for it is a gross feeder and delights in deeply worked, moderately moist and well enriched soil. It usually sets seeds freely, and from these fresh plants may be raised, or increase by division may be practised. *Kent.*

ALPINE GARDEN.

LINARIA ALPINA.

In his justly eulogistic article on Linaria alpina, *L. B. C.* (November 9) refers to the unprocurable albino of this plant, but does not mention two noteworthy varieties which are in cultivation, namely, concolor and rosea, unless, indeed, his remarks on forms of "dull bluish or pinky-whiteness" be taken to indicate the latter. These two resemble the type in all but colour. Linaria alpina var. rosea, as its name partially implies, has flowers of a colour usually described as "shrimp-pink," although paler, with a touch of bright orange on the lip; the concolor variety is purple, like L. alpina, but lacks its attractive "egg-yellow lip." They need no more care than the species of which they are varieties.

Linaria alpina flowers and seeds with the exuberance of an annual, and may conveniently be treated as one on the rock garden, for there is much of the annual in its nature. Old plants cannot be trusted to survive the winter, but this is a matter of little importance, as the seedlings which crop up the ensuing spring grow quickly into clumps of narrow, bluish foliage, and flower the same year. Plants may be bought and put in during spring, but seeds sprinkled over the rock garden in autumn should yield equally good results, provided the soil is well-drained and the place sunny. If something of a weed when established, owing to the cheerful way in which it seeds itself about, Linaria alpina has, at any rate, none of the troublesome underground spreading habits of L. pallida, and is a plant which the rock garden can ill do without. *W. T. S., Cambridge.*

HABERLEAS.

Whereas the Ramondias enjoy widespread popularity among alpine plant enthusiasts, their close relatives, the Haberleas, do not appear so popular, although where Ramondias will grow, there also will the Haberleas flourish. For these beautiful plants delight in cool, shady places, in the crevices of rocks with northern exposures, and with a moist, cool root-run in peaty loam.

Haberlea rhodopensis, native of the Balkan mountains, is the type plant of the genus and is, perhaps, most frequently grown in rock gardens. It forms close, Ramondia-like rosettes of rusty-haired, dark green and toothed foliage, and every rosette produces during May and June from one to five slender-stalked sprays of several blooms, like miniature Gloxinias, lilac-lavender in colour, with a gold-speckled, lighter throat.

H. rhodopensis has given rise to several good forms, for it varies considerably from seeds, and among the coloured varieties the most striking is that known as Ferdinandi-Coburgi, the flowers of which are larger and more richly-coloured than those of the type, and are produced with greater freedom. This Haberlea is sometimes classed as a distinct species.

One of the most chaste and beautiful of all alpine plants is the albino form of H. rhodopensis, known under the varietal name of virginalis, still rare in gardens and, withal, fairly expensive to purchase. It is so beautiful that unless possessed of a good stock one is not disposed to commit it to the open garden, preferring to afford it the shelter of the alpine house, for its pure white blooms are of delicate and refined loveliness.

The Haberleas may be raised from seeds, which are very minute and, consequently, require handling with care, or, like the Ramondias, they may be increased by leaf cuttings, fully developed leaves being selected for this purpose and their stalks inserted in sand in a warm propagating case. Young plantlets are formed from the buds at the bases of the leaves and these may be potted on, carefully hardened off, and grown on in a cold frame until large enough for planting out.

The Haberleas—especially the varieties Ferdinandi-Coburgi and virginalis—are very attractive claimants for cultivating in pans in the alpine house, to which treatment they respond well and are very striking when in bloom. They should be planted in a mixture of peat and loam, with a little silver sand, and with a layer of Sphagnum-moss above the crocks, and should have small pieces of rock wedged firmly about them; under alpine house treatment they should, of course, never be allowed to suffer from lack of moisture at the roots.

HUTCHINSIA ALPINA.

Hutchinsia alpina is one of those unpretentious alpine plants which, by reason of their cheerful disregard of changing seasons and variable weather, rank among the indispensable.

The spring is its flowering season, but it continues to produce its bright little clusters of flowers intermittently throughout the summer and autumn, and even now its verdant carpet is still dotted with bloom.

A native of the alpine regions of central and southern Europe, H. alpina is very easy to grow, delighting as it does in a cool rock crevice or a position at the base of a large rock or stepping stone, there to form a close mat of delicate, feathery foliage of refreshing greenness; it does not object to exposure to sunshine, but it is when given a cool, sheltered position that it is seen at its best, for in such it remains bright and verdant throughout the year. It likes cool loamy soil, and is easily increased by division.

The pure white flowers are produced so freely in tiny clusters, in spring, as to almost completely cover the carpet of foliage; they are carried on slender stems not more than three inches high, and, as stated, the production of these blooms is continued over a long season. This unpretentious Crucifer is indeed invaluable among alpine plants, and it is also a very suitable subject for use as a ground cover to choice Crocus and Narcissus species.

It has a smaller and more compact relative in H. brevicaulis, but this would appear to be rare, for it seldom makes its way into the catalogues of alpine plant specialists, and whether it is so desirable as H. alpina, I am not prepared to state, for I have had no experience of it. *W.*

PLANTS NEW OR NOTEWORTHY.

FATSHEDERA LIZEI.

This hybrid evergreen is the result of a cross between the Japanese Aralia (Fatsia japonica) and the Ivy (Hedera), hence the somewhat ugly name. It is an interesting subject, and was raised by the brothers Lizé, of Nantes, and sent out about three years ago. Mr. Edward H. Woodall kindly sent two plants of it from Nice, shortly after it was distributed, and from cuttings of these we have now several plants put out in various gardens. I send a photograph (Fig. 196, p. 425) of two planted here about two years ago. These are now over five feet in height, and would probably have been considerably larger but for the severe weather of last February, which damaged the soft, young growths. The leaves are uniform and do not show that variation of shape met with in the Fatsia. They are considerably larger than those of the common Ivy, the shade of green being similar.

The growth is free, and the plant promises to make a tree rather than a bush, but it is as yet too early to venture much regarding its future value as an evergreen tree. At present the young growths have too much of the floppiness of the Ivy, and are rather easily bent, or kinked, by strong winds at their junction with the main stems. They may, however, become more rigid as the plant ages, and growth is consequently steadier. *J. Clark, Scarborough Parks Department.*

SALVIA SPATHACEA.

It might reasonably be expected that the genus Salvia, which consists of several hundred species, should have given us far more decorative and useful plants than has been the case. The number worth growing is small when compared with the strength of the genus.

S. spathacea is, however, well worth a trial as it strikes a new note of colour among the open-air species. It is a native of California; is the Humming Bird Sage of the non-botanical, and the Audibertia grandiflora of Bentham. In 1928 it was by far the most striking species in the bed devoted to Salvias at Kew. With me it survived the winter in the open and has formed strong, erect-growing, handsome plants with spikes of soft red flowers.

It may be briefly described as a strong-growing herbaceous plant from two feet to three feet in height; leaves six inches to eight inches long, broadly ovate, the upper surface crenulate and dark green, and the under surface white. The flowers are borne in a dense spike of many whorls. It is a striking plant in many ways, and if the colour could be improved a little, as it might be by careful selection, for they seem to vary in shade, this Salvia might well take a prominent place in every good herbaceous border.

EUSTOMA SELENIFOLIUM.

The successful planting of the beautiful Eustoma (Lisianthus) Russellianum in the open air, where it has been a source of great attraction as a park bed for several months, has turned attention to this splendid genus of plants, and one wishes to know what other members of the family are like.

Through the kindness of Mrs. Bixby Bryant, of Los Angeles, an opportunity of growing E. selenifolium (Fig. 195), has occurred; it is a plant that has not been in cultivation for many years. This species grows plentifully on Mrs. Bryant's own ranch, and an ample supply of seeds was kindly forwarded in 1928.

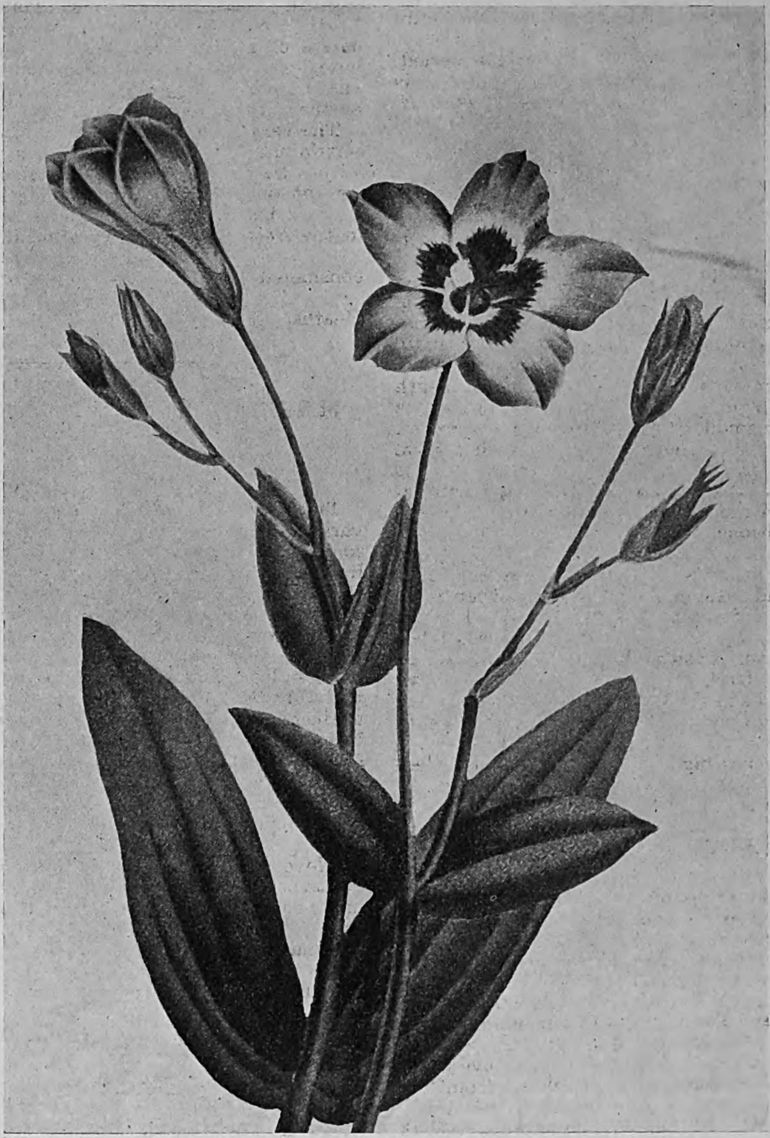

FIG. 195.—EUSTOMA SELENIFOLIUM.

It has not proved any more easy of cultivation than E. Russellianum, in fact, as a park venture it has been more difficult, but at Kew it has flowered very well indeed. While not to be compared with E. Russellianum, it is yet a pretty species and well worth persevering with.

It may be likened to E. Russellianum in miniature, and so requires no further description.

E. selenifolium is very well figured in Paxton's *Magazine of Botany*, Vol. XIII, page 99, as E. exaltatum, where its cultivation, history, etc., are fully recorded. *T. Hay, Hyde Park.*

ORCHID NOTES AND GLEANINGS.

MASDEVALLIAS.

These Orchids are well-suited to an establishment where economy in fire-heat is an important consideration, for most species and hybrids succeed best in a cool house with a minimum temperature of 50°. The temperature must be regular and the atmosphere moist, and, provided due care is given to ventilation, watering and shading, their cultivation is by no means difficult. There are several species of note, but considered from a horticultural point of view, the Masdevallias may be divided into two distinct groups. In one group, the drooping habit of the flower renders the plants particularly suitable for basket culture, while the other section, having erect flowers, are best grown in pots.

For basket culture, M. Chimaera and its variety Roezlii are useful, the type plant being the best. Others are M. Mooreana, M. majestica, M. Chimaera var. Backhouseana and M. muscosa. M. muscosa is an interesting little subject with a lip so sensitive that it shuts up immediately it is touched. Among those recommended for pot culture are such handsome sorts as M. coccinea var. Harryana, M. Veitchiana and M. ignea var. Massangeana.

Owing to their compact habit, a large collection of Masdevallias may be grown in a limited space, and it is possible to have flowers all the year round.

The best times of year for repotting are either the end of August, or February. Plants should not be disturbed unless in need of larger receptacles. In many cases established plants will only require a little fresh compost near the surface. Where, however, potting is absolutely necessary, there is nothing Masdevallias like better than a mixture of chopped Sphagnum-moss, best Orchid peat, and coarse sand in equal proportions, with a sprinkling of fine charcoal or crushed crocks.

Healthy specimens should not be disturbed at the base when repotted, beyond removing any old drainage and sour compost. But where the plants are old and almost leafless, they call for quite different treatment. Such specimens are best divided, and after removing all decayed roots and useless parts, pot each portion separately or several together in one pot. It will be found a good plan to use receptacles of a small size so as to avoid over-potting. Where a light top-dressing will suffice, care should be taken, when removing old soil, not to injure the roots. Plants that have been disturbed will need careful watering for about seven weeks afterwards to prevent loss of roots and foliage. Keep the soil just moist and when more root growth has developed, additional supplies of water may be given. This is one of the secrets of success with Masdevallias, *i.e.*, always keep the roots growing in a comfortably moist compost, without saturating them. Another point to remember is ventilation, for while fresh air is essential, draughts should be prevented, and provided the weather conditions are suitable, bottom ventilation is an advantage. During the summer, shading from strong sunlight and protection from wind will be necessary. When the foliage is well-grown—which is half the Masdevallias beauty—the plants should be examined regularly so as to keep them clean, removing thrips or other pests by sponging the foliage with a good insecticide. *G. B.*

INDOOR PLANTS.

NEPENTHES.

Nepenthes, or Pitcher Plants, are seldom grown extensively nowadays, although anyone possessing a stove or a tropical plant house in which a temperature of 65° can be maintained through the winter months should certainly grow a few of these curious plants.

Their cultivation presents no great difficulty provided a suitable temperature can be maintained and plenty of moisture is afforded both at the roots and in the atmosphere, for without such the plants will never acquire the strength necessary to produce their curious Pitcher-like leaves.

Nepenthes may be raised from cuttings taken early in the year (about the middle of February is the best time), inserted in small pots in a mixture of finely-crushed crocks, sand and chopped Sphagnum-moss, and plunged in a propagating case with a bottom-heat of 75° to 80°. If kept close and shaded, they should root in about two months, when they may be potted into four-inch pots, using a mixture of best fibrous peat, crushed crocks, clean Sphagnum-moss and a little charcoal, care being taken not to injure the tender young roots during the process. Grow the young plants under moderately close conditions until they have become established, when they may be placed close to the glass. Keep them well supplied with water at the roots—the water should be the same temperature as the house—and syringe freely to keep the staging and surroundings thoroughly moist. Some of the strongest plants may require another shift into five-inch pots as the season advances, using for this purpose a compost similar to that for the first potting, only in a rougher state. After the second potting, keep the plants well up to the glass by suspending them from the roof-rafters; light shading should be given and increased as the sun gains power, for if subjected to strong sunlight the leaves assume a deep crimson colour, instead of being tinged or mottled with red; this latter condition is evidence of the robust health essential to the full development of the pitchers, which should be produced at the extremity of every leaf. Every effort should be made to maintain a temperature of 75° to 80° during the summer months, and not lower than 60° to 65° during the winter. The plants, having been properly wintered, should be headed back to four or five buds in February and grown on as advised.

The following are a few worthy members of the family:—N. coccinea has crimson, flask-shaped pitchers with deeply fringed wings, and N. Rafflesiana, a handsome Bornean species, has greenish-yellow pitchers richly marked with brown. The pitchers of N. Lewis Bradbury are large, green, blotched with pale red and with fringed wings; those of N. Ratcliffiana are flask-shaped, green, spotted with red, and with ciliate wings; while N. Sir W. T. Thistleton Dyer has very large pitchers heavily blotched with rich brownish-crimson, with a waved and finely ribbed rim. N. Wittei, another desirable sort, has very long and narrow pitchers, which are green, blotched with dark red, with a small, dark green rim. *J. L. McGoogan.*

BULB GARDEN.

TULIPA CHRYSANTHA.

There are few Tulips suitable for culture in the alpine house, among the most useful being T. chrysantha, which makes an effective, if not brilliant, display over a considerable period in the early spring. I first made the acquaintance of this charming bulb last year at Wisley, where a large pan of some two dozen blooms attracted much attention for about five weeks. The narrow leaves, of a glaucous hue, about five inches long, reflexed, and with a narrow, darker margin, were refined in appearance, while the clear yellow flowers were borne stiffly erect on four-inch stems, and were delicately scented. T. chrysantha appears to be a somewhat variable species in the colour of its blooms. *J. T. Wall.*

MUSCARI POLYANTHUM.

Two or three years ago a friend sent me a few bulbs of this lovely Grape Hyacinth. I planted them in a small group in the rock garden and since then they have made a wonderful show each spring. The colour is a particularly pleasing shade of blue, and the flowers are slightly larger than those of the ordinary Grape Hyacinth. As this colour is not too plentiful in the garden, I am convinced Muscari polyanthum will be found an acquisition to any garden. The bulbs may be purchased now, and they should be planted so soon after they are received as possible.

Well-drained, moderately rich soil is appreciated by this Muscari, and I find it is beneficial to mix a little leaf-mould with the medium at planting time. In addition to its value on the rock garden, the species makes an attractive bed if massed closely in a sunny situation, while as a subject for conservatory and house decoration it is also very useful. The bulbs should be lifted and replanted about every third year. *George H. Copley.*

PLANT VARIATIONS.

(*Continued from p.* 405.)

SPORTS, CHIMAERAS, VARIEGATION AND MUTATIONS.

Bouvardia.

Bouvardia Bridesmaid, a double, pink-flowered variety, when propagated by means of root-cuttings gives rise to double, red-flowered plants, which are indistinguishable from the variety called Double Hogarth. In 1918, out of a batch of seventeen root-cuttings one came single, as in single Hogarth. This single, scarlet variety produced during 1926 a branch with single, pale pink flowers.

The variety Princess of Wales is a variety having single, pale pink or cream-coloured flowers and, when grown from root-cuttings, gives a red-flowered plant, very distinct from the parent.

Pride of Brooklyn, a single, white-flowered variety produced during 1926 a branch on which were white flowers, as in the type, and some pink flowers, as in the variety Priory Beauty, while one flower was half-white and half pink.

Alfred Neuner and President Cleveland have shown a tendency to vary a little from root-cuttings.

Pink Perfection, a large-flowered, pink variety, is stated to have been raised from root-cuttings of President Cleveland (*Gard. Chron.*, Dec. 13, 1919).

The following sports are mentioned by Burbidge: Bouvardia Davisoni, a white sport from Hogarth; Maidens Blush, a blush or pink sport from B. Davisoni.

Phlox decussata (Garden Varieties).

It is well-known that some of these Phloxes, especially those with pink and white flowers, or white flowers having pinkish buds, have a tendency to produce pure white, pure pink, and sometimes various degrees of pink and white flowers. Occasionally, the salmon-pink or even the magenta-pink will vary in purity of colour. When such varieties are grown from root-cuttings, they cannot be depended upon to come quite true to type.

The following varieties grown at Merton from 1923 to 1926, have varied more or less when propagated by means of root-cuttings: Duchess of Roxburgh, Meteore, Mrs. Oliver, Steigler, Fiancé, and Lady Tweeddale.

Of sixteen plants raised from roots of Phlox paniculata var. alba, one has abnormal flowers with peculiar small, crumpled petals which do not expand. This peculiar form remains constant, and can be reproduced by means of its roots but has not produced viable seeds.

The variegated-leaved varieties Comptesse de Jarnac and Phlox Iris versicolor, have given green-leaved plants from root-cuttings.

Other Variegated Plant Chimaeras.

Spiraea Ulmaria var. variegata, a variety having a green skin over a yellowish core, produces from root-cuttings yellowish shoots which soon die owing to the absence of chlorophyll (Fig. 194).

Other variegated-leaved plants, having a white or creamy-skin over a green core, have produced normal green shoots from root-cuttings, *e.g.*, Ajuga reptans var. variegata, Bouvardia Humboldtii var. corymbiflora variegata, Epilobium hirsutum variegatum, Rubus fruticosus var. variegatus, Sedum Telephium var. variegatum, Solanum Dulcamara var. variegatum, S. capsicastrum var. variegatum and Symphytum patens var. variegatum.

Plants in which the variegation is not well defined, *i.e.*, having mosaic, patchwork, or mottled leaves, and when grown from root-cuttings come true to the parental form, are: Artemisia vulgaris var. variegata, Barbarea vulgaris var. variegata, Geranium Endressi × G. striatum, and Pelargonium peltatum variety Madame Guillemond.

Plants having purplish or red leaves usually come true from root-cuttings. *e.g.*, Ajuga reptans var. purpurea, Brassica oleracea (Red or Pickling Cabbage), and Corylus Avellana var. purpurea. Doubtless this would apply generally to purple-leaved forms of trees and shrubs, were it found possible to induce them to produce buds on their roots.

Graft Hybrids.

CHIMAERAS PRODUCED BY GRAFTING.

In addition to the chimaeras which occur in many variegated plants and hybrids, others may be artificially produced by grafting. These are commonly known as graft hybrids.

In making a graft hybrid, the main shoots of young and vigorous plants of the two species concerned are cut off and exchanged by grafting the one upon the other. The form of grafting which has proved most suitable for this purpose is that known as "cleft" grafting. After a union of stock and scion has taken place, the plants are cut across at the point of union, and the tissues exposed on the cut surface. After a time, a callus is produced on the cut surface giving rise to young shoots. Most of these consist of uniform tissue which is pure for one or the other of the species used, but from parts of the surface, where the two tissues have united, will occasionally arise shoots combining the tissues of both kinds of plants forming the graft.

These shoots may be either (A) Periclinal Chimaeras, or (B) Sectorial Chimaeras. In the former the core of the shoot will consist of the tissue of one of the species, enclosed within the skin of the other, and may be likened to a glove fitting over and completely hiding the other kind. Such chimaeras are often distorted in appearance and the leaves much buckled. The leaves of such chimaeras are usually all alike and more or less intermediate in shape between the two species of which the composite cross-grafted plant is composed. When these plants produce viable seeds their progeny reproduce only the character of the tissue forming the sub-epidermis. In Sectorial Chimaeras the shoot will consist of a sector formed of tissue of another species type. Such a plant will have three types of leaves, some of the type of one species and some of the other and a few that are sectorial.

The sectorial leaves form in the region of the stem where the tissues of the two kinds meet, the two parts being divided by a longitudinal line.

Where the differentiation of the two types of tissue, however, is not so definite, and when the stripe of tissue consists of a few cell layers of another species, such a chimaera is not a true sectorial, but is actually closer to the periclinal form of chimaera, and is best regarded as an incomplete periclinal, for which the name mericlinal has been proposed. The large majority of plants hitherto mentioned in literature as "sectorials" really belong to this group.

Mericlinal chimaeras are quite common, sometimes as whole plants, often only as shoots, or even as flowers or fruits.

Graft hybrids have been known a comparatively long time, and as the name indicates, were first believed comparable to a seminal hybrid, formed by the actual fusion of cells of stock and scion, and were regarded as real hybrids, in that the parental elements were supposed to have fused or conjugated in the same way as the male and female cells in fertilisation, but in many graft hybrids which have been investigated, it is clear that no nuclear fusion occurs.

In the well-known graft-hybrid, Laburnum (Cytisus) Adamii (*Gard. Chron.*, 1911, Vol. L, Fig. 77), the skin of the plant is formed by Cytisus purpureus; the central portion or core, by the common Laburnum, but a re-arrangement of the two tissues frequently occurs and gives rise to the development of pure shoots of Cytisus purpureus and Laburnum, respectively.

This interpretation was first given by Baur and followed up later by Bateson and others, especially in regard to variegated plants, in which it became evident that a large number had a chimaerical structure.

Although many chimaeras, as stated above, are exceedingly stable, yet a tendency to "break" or "sport" is, on the whole, a characteristic feature of such plants.

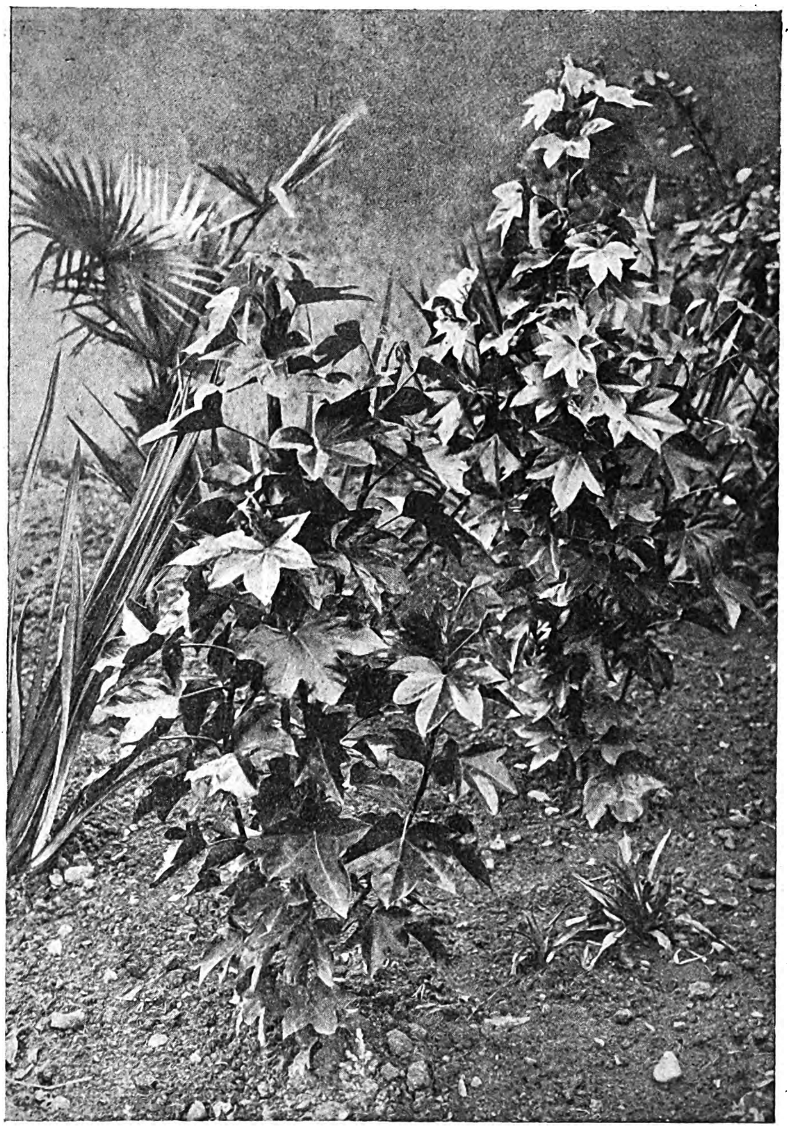

FIG. 196.—FATSHEDERA LIZEI.
(see p. 423.)

It will be understood from the foregoing account of the general make-up of chimaeras that neither from sexual reproduction nor from vegetative propagation, whether from shoots or roots, will anything genetically new be produced. The breaking or sporting only gives back the constituents of the plant either separated out, or rearranged.

Among examples of periclinal and sectorial chimaeras produced by grafting—space will not permit of a fuller discussion of this interesting subject—the following well-known kinds of graft hybrids may be mentioned: Laburnum Adamii or Cytisus Adamii, produced by grafting Cytisus purpureus on Laburnum vulgare, by Jean Louis Adam, a nurseryman at Vitry, near Paris, in 1825. This plant is often met with bearing branches of Laburnum vulgare and small, twiggy bunches of Cytisus purpureus, together with branches having flowers of a more or less intermediate character, *i.e.*, Laburnum Adamii.

Crataego-Mespilus Dardari, *i.e.*, Mespilus germanica (Medlar) grafted on Crataegus monogyna (Hawthorn), was first noticed in 1894-5 in the garden of M. Dardar, at Bronveaux, near Metz.

Crataego-Mespilus Asnieresii occurred also on the same tree. Both these graft hybrids tend to break up in the same way as Laburnum Adamii has done. (Bean, *Kew Bulletin*, 1911, p. 269; Gregory, *Gard. Chron.*, 1911, Vol. L, pp. 161 and 185, Figs. 86 and 87).

Crataego-Mespilus grandiflora (syns. Mespilus Smithii, of De Candolle, and Pyrus lobata, of Nicholson) is probably a natural hybrid. It is stated to occur as a wild plant in France.

Crataegus Oxyacantha, crimson variety, when grafted upon the white form, will produce bunches of white, pink and crimson flowers.

Fagus sylvatica var. heterophylla (Fern-leaved Beech), when grafted on the common form, frequently produces branches of both forms, intermixed.

Various species of Solanum and Lycopersicum (Tomato) have been grafted with interesting results; first by Professor Winkler, of Tubingen, 1908 (Sclanum tubingense, *Gard. Chron.*, 1911, Vol. L., Fig. 76), and more recently by Jorgensen and Crane (see Bibliography to follow). *A. Hosking, Garden Superintendent, John Innes, Horticultural Institute, Merton, Surrey.*

(To be continued).

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GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

NOW is the time to scatter seeds of the Willow Gentian—G. asclepiadea—on bare ground in woodland. The seeds are produced in great profusion and germinate readily. Flowers follow in the second year after sowing, ranged along three-feet wands; most of them blue, although here and there a plant with white flowers will appear. Rabbits do not injure this or any other species of Gentian.

Another good woodland plant is one which has long been here under the name of Chelone obliqua; but I am doubtful whether that is its proper title, for some authorities give purple as the colour of its flowers; whereas those of our plant are pink. It produces plenty of seeds. Add to this pair Antholyza paniculata, and you have a good trio to brighten woodland glades withal in autumn.

As for Montbretia, one should be careful where it is planted, for it is a terrific spreader, smothering all humbler growths and spreading with resistless rapidity. Similar discretion should be observed in planting the pretty Polygonum campanulatum. Seduced by assurance that it was not a rampant grower like P. cuspidatum, P. sachalinense, etc., we treated it as a border plant, whence it has given us much trouble to expel. Even in the woods, discretion is desirable in assigning it a place, for it races around as greedily as any of the others. What is the secret property in all species of Polygonum that deters rabbits from nibbling the succulent shoots?

Most species of deciduous Rhododendrons turn a fine colour in autumn. Conspicuous among the Azalea group in this respect is R. Schlippenbachii, which carries its broad, rounded leaves in terminal whorls of five, and these assume most delicate tints before they fall. A large bush of this species presented a sight as fascinating in October as it was in May when covered with roseate blossoms.

Among loftier growths that give as fine autumnal colour, Zelkova crenata and Z. acuminata deserve to be more frequently planted that it seems they are, for the foliage turns rich yellow and orange before falling, and outlasts most other deciduous trees in doing so. Just now, near the end of November, it is about at its brightest. It is attractive at all stages of growth, but in planting it should be borne in mind that these species of Zelkova are not shrubs, but nearly related to the Elm and attain a stature of a hundred feet.

This question of stature sometimes causes embarrassment, as when we had a lot of Cercidiphyllum seedlings to deal with. Being ignorant of the nature of this beautiful tree, we treated them as shrubs for the beauty of their autumn colouring, and found, too late, that it is the largest deciduous tree in Japan! The ultimate proportions of Eucryphia pinnatifolia seem likely to exceed what we expected of that beautiful species. The largest specimen I have seen is at Poltalloch, in Argyll. It is twenty-nine feet high and eighteen feet across; proportions whereof the slow growth of this plant in youth gave one little indication. *Herbert Maxwell, Monreith.*

NOTES FROM A WELSH GARDEN.

A GALE of great violence, following a period of frost and wet in trying alternation, was enough to bring most of the autumnal colouring to an abrupt ending. But two young trees braved the ordeal so successfully that they scarcely lost a leaf, and are now (mid-November) better than ever. These are Liquidambar styraciflua and Eucryphia pinnatifolia. The former is, perhaps, the more brilliant in its blended shades of orange, crimson, plum-red and vivid rose-carmine, but there is a singular attractiveness in the Eucryphia's warm and generous tones, and these seem to harmonise with the tree's stately poise and balance. I saw nothing finer in seasonal leaf-colour at Bodnant the other day than this splendid Chilian, represented by a great number of well-matured specimens admirably grown, but some Fothergillas were, perhaps, the most brilliantly adorned among individual smaller shrubs.

A Cheiranthus called, I believe, C. Newark Park, has been a remarkably striking plant throughout the summer, and it is still bearing quite a good number of blooms. These latter are an unusual fulvous orange-brown, which strikes just the right note in the autumn border. The plant, moreover, has a compact habit and vigorous constitution to add to its reputation for continuous blossoming. Its fiery colour is not one that goes well with anything, but on a dry, sunny slope mainly occupied by a few groups of some of the taller Sedums, with a good deal of gold, red and yellow about their flowers, fruits and leafage, C. Newark Park has been, and is still, most effective.

Until this season, Dahlia Merckii was new to me, save by name, and from what I had heard of it, I was not unprepared to be disappointed with the performance of a bunch of seedlings sent by a generous correspondent. But these have been, on the contrary, most delightful. Although only a couple of inches high in June, they grew rapidly, attaining one foot by September when the first blooms appeared. These flowers, if small as Dahlias go, were in nice proportion to the size of the plants, and their colour was a most refreshing shade of cool and delicate lavender. I write in the past tense, for at the first frost, a week or so ago, the plants were completely cut down. But this Mexican, which is by no means a new thing, is stated to be quite reasonably hardy. If the colour varies in seed-raised plants, it is evident from the above experience that this is a species which will repay selection. The very similar Bidens dahlioides (Cosmos diversifolius, *Bot. Mag.*, t. 9180), by the way, never reappeared after last winter's severe frosts.

A plant which is always a source of much satisfaction and pleasure at this season is that form of Vinca difformis (acutiflora) with starch-white blossoms, the sharply-pointed segments of the corolla being broad, almost rhomboidal, in shape. This may be, and probably is, the type, but it is a vastly superior plant to that dismal creature whose flowers are a sombre purple of insufferable dullness, with the lobes of the blossoms so mean and narrow that they are reduced to mere strips. The former is also a much better bloomer, giving flowers in abundance during mild intervals from November to May.

Salvia Grahami is a useful old plant for autumn flowering. If it often falls short of being among the first-raters, owing to its leisurely and economical habit of opening only about one flower of a spike at a time, its season covers at least six months. The colour of the blossoms seems to vary somewhat, but the brilliant crimson, warmed by a touch of scarlet in some lights, of the sub-shrub at its best is decidedly attractive. With this and the faithful Winter Jasmine (Jasminum nudiflorum) which breaks into yellow in November, must be mentioned Abutilon megapotamicum. Few flowering shrubs so doggedly carry-on throughout the late autumn as this semi-evergreen species with its gay shuttlecocks of blood-red and yellow bobbing at the ends of their hair-like stems. Viburnum fragrans is, of course, another regular autumn bloomer, but I always feel that it might make a more successful job of its flowering were it to defer the process until spring. For its gift of fragrance we can at any time afford to be grateful, but Apple-blossom effects in November fog or winter's grey are rather on the chilly side, and the shrub places a mortgage on its future by indulging in these spasmodic efforts with such a careless disregard of conditions.

Callicarpa japonica and C. Geraldiana are pleasing little shrubs at this season, even if their crop of shiny violet berries is too frugal to be very striking. They may do better in other places, but here a certain shy reticence in growth, so well as in flower and fruit, militates against real success. The big violet fruits on some of the hardy Dianellas can, on the other hand, be the showiest objects of their colour throughout the autumn, and they appear to be able to withstand light frosts with impunity. How many of us wish we could make that last statement of the Berberises! Most of them, certainly the great majority of those species and hybrids grown for autumnal display, are so susceptible to frost that the colour of their beautiful fruits is transformed into most disagreeable hues at the first touch of frost. Even the intensified splendour of the foliage is not sufficient to make amends for that depressing failing. It is very different with the Cotoneasters. But if the earliest fruits of these have almost all gone—and the later ones are not yet ripe—we still have our well-tried friend, C. Simonsii, and I am not angling for sensation when I write that one specimen of this fine and useful shrub is at the moment by a long way the most handsome of its genus in a fairly representative collection. C. Simonsii will always vary a good deal in its autumnal display according to its position and treatment, but when you get it laden with its very large orange-scarlet berries and almost every leaf aglow with a flaming crimson, I know of no other mid-season species that will even rival it. Moreover, few species known to me give this colour over so long a period, for it is among the first to redden, and spring will be within sight before the last of its berries have gone. Its only failing is the absence of that symmetry and grace which is so characteristic of its genus.

The woodland undergrowth's contributions to the passing autumn cannot be passed over, for there is a peculiar charm in the rust-red, cinnamon-brown and buff of the Osmundas, our native species bravely excelling in stature, if not always in colour, the Americans. Onoclea sensibilis is not less delightful in its soft fawn than it is in summer, and the rambling green masses of Dicksonia pilosiuscula pass away in a chrome-yellow. Among such things as these are the stately growths, nearly a yard tall, of an almond-scented Solomon's Seal, its glossy black fruits dangling in the wan light of its ivory leaves. That equally elegant plant, Lysimachia clethroides, adds its note to autumn's requiem in a swan-song of pallid creamy-white and vivid rose-madder, and the blood-red of Geranium Loweii, leaf and branch, is even more intensely rich here beneath the trees than is the dying foliage of G. sanguineum in its various forms in drier, more open places. *A. T. Johnson, Ro Wen, Conway.*

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXVI.—Sadiya Calling.

Buttercup and I had often discussed what it would feel like to live normally again, after pigging it for eight months. To be clean and dry, to feel overfed, to sleep between sheets, to have room to swing a cat (under cover, of course; there was room to swing a cat in the forest), to move swiftly from place to place, to see humanity in bulk, and vegetation in bulk, to hear sounds more alluring than the rasp of the wind in the trees, the drumming of rain on the tents, and the muffled whine of the torrent—how pleasant it would all be. That to which we looked forward ardently was Civilisation, and this life, throughout October particularly, was just hell! But to enjoy the full flavour of the contrast, one ought to fly to Calcutta; otherwise the change was too gradual, a slow convalescence. There was the first bungalow at Theronliang. Then Denning Outpost, where one could buy a tin of sausages, and perhaps a chicken. Finally, Sadiya, and the Political Officer's bungalow, followed by a hot bath, and a boiled shirt. And so by easy transition to Calcutta, a sea voyage, and home. Still, although we did not fly to Calcutta, in the end I made a very rapid march back to Theronliang. On October 25, I was buffeting my way through a snowstorm on Polon. At 7 p.m. on the 29th I marched into Theronliang bungalow, an hour after Buttercup arrived, faint with hunger and weariness, having done seven hard marches, mostly in pouring rain, in four days.

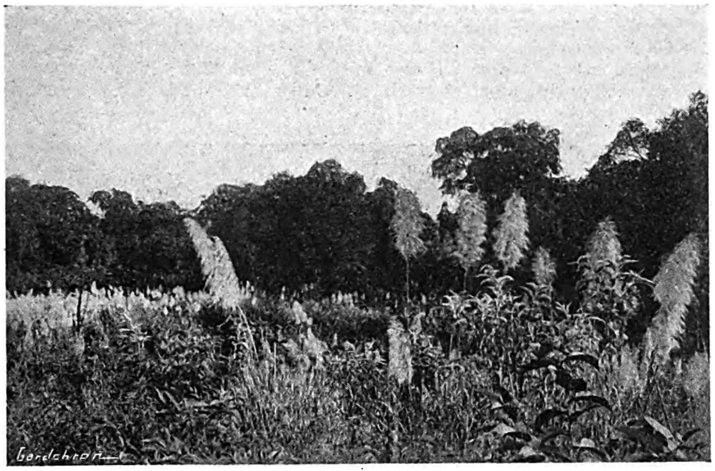

FIG. 197.—FEATHER GRASS (SORGHUM SP.) IN FOREST CLEARINGS.

I had never intended to exceed the speed limit like this, and it came about in the following way. When last heard of, we had abandoned the cave on Polon, and started down hill in the rain. From our late camp to Mitonma took about three hours, by a ridge I had only explored for a short distance. When we reached the temperate forest below I noticed all kinds of trees—a Magnolia with small, squat cones, a magnificent specimen of M. rostrata, the yellow 'Grande' Rhododendron in full fruit, a tree with shining digitate leaves and tall spikes of black berries (Araliaceae), R. arboreum, the 'Stamineum' Rhododendron and others. I regretted then that we had not explored this ridge in the spring; but how *could* one tell! Our object then had been to push on towards the head of the valley with as little delay as possible, and Mitonma was not one of the places where we had been held up.

Then, crossing the deep ravine we had turned aside from the main path and followed a bye-pass to the next village; and having spent the night there, we departed early for Chibaon, where I half expected to meet Buttercup. However, we learnt that he had left two days previously, and therefore had not halted a day. I picked up a note from him, and some supplies and started in pursuit—he would be leaving the bridge at this time, unless he had halted a day there. It is two long marches for coolies from Chibaon to the bridge, although without loads the Mishmis do it in a day. We went down to the river bed, where I saw Peach trees in full bloom, and then started on the toilsome journey along the cliffs and over boulders. It had been a fine morning, and was quite pleasantly hot in the river bed. On the forested cliff I found a remarkable parasitic flower, springing directly from a root, just like a Rafflesia. There were lots of them about, and I dug up several—the colour was reddish, and reddish-chocolate within, the seven fleshy petals being curved back.

By the time we reached our old halting place it was raining steadily. We stopped for a meal, and presently along came Buttercup's porters from the bridge, bringing with them a note. He had started down the Lohit, so evidently he had made a good bargain over the coolies, and was going through to Theronliang without a halt.

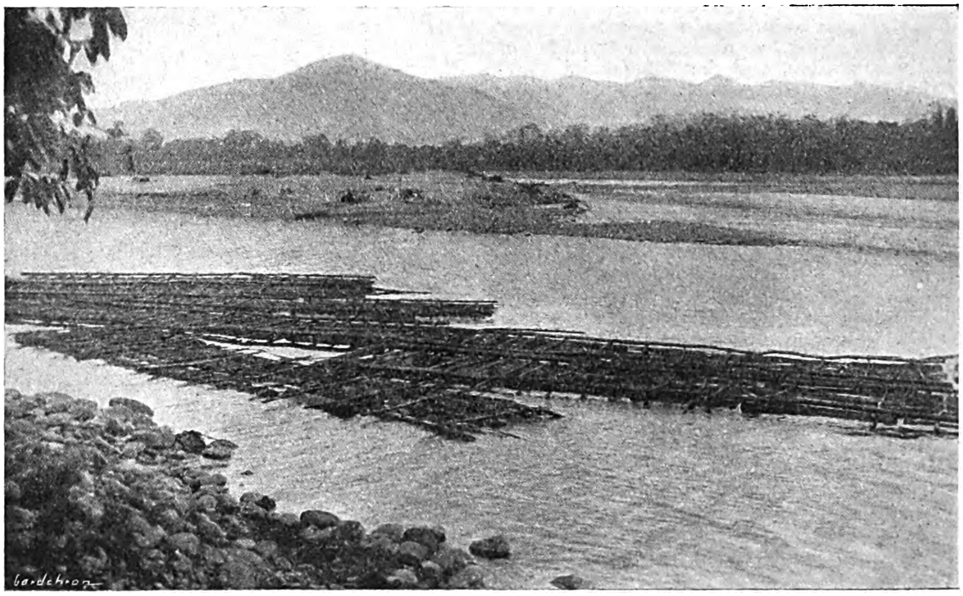

FIG. 198.—TIMBER RAFTS ON THE LOHIT RIVER.

After lunch we started again in pouring rain. It was an awful march. Towards dusk we came to the long cliff climb, and here we had to hurry, as the ledge was very narrow, and there were several dangerous places which would have been difficult to negotiate in the dark. By the time we got on to the boulders in the river bed again it was almost dark, for the sky was overcast and darkness came early; but we pushed on in the rain, and reached the bridge. We had still some way to go to the village, up a steep path. The night was inky dark, I was almost dead beat, and the rain was coming down in sheets. However, we reached the village, exhausted after marching for eleven hours, and I was soon asleep.

Next morning the Lohit valley was full of cloud, and it was quite evident that it would not stop raining all day. At first I thought of staying in the hut, but about 10.30, I decided to start and get it over. So we marched till five o'clock, when we reached the river bed camp, not nearly so pleasant now as it was in April, when the weather had been fine. Buttercup had spent the previous night here—he was only one march ahead now—and we occupied the Banana-leaf shelters his men had run up. I hardly thought it possible for us to reach Theronliang next day, so did not make a very early start. In 1926, when we had marched from the Delei to Theronliang in two days, we had camped a good bit further on than this the first night; on the other hand, we had coolies with us then, carrying full loads. We started again in a drizzle of rain, but it improved later. About one o'clock, we reached Buttercup's last camp, and halted for a quick lunch.

Then on again, until at last we reached the saddle, and dropped down into the Tidding valley. There were still two hours of daylight left, but the worst part of the march lay ahead; over the boulders, through the waterlogged forest, until finally we came to an appalling cliff, and my men lost the proper track. However, men had been over the cliff before, so we supposed we could go. Towards the top, I lost my nerve completely, and said I could not go on. Hubble was above me, climbing like a monkey; the Gam was below. Another wall of rock barred the way, and only a root cable to haul myself up by, with a 150 feet fall into the roaring river if the cable broke, or my grip failed. After collecting myself a bit, and deciding that it was more terrifying to go back than to go on, I pulled myself up the face, and found that we were at the top, and also on the path—which we ought never to have left. From here to the Tidding bridge was some distance, and the going was not good; but there were no more cliffs. We reached the bridge after dark, crossed the river, and had only another mile to go. It was just like 1926, history repeating itself almost word for word, except that now I knew the way!

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 16, 28; October 12, 26; November 9 and 23, 1929.

Presently the lights of Theronliang glimmered ahead, and crossing the torrent, we climbed the high bank and shouted. Next minute Luso came out, astonished to see me, and I walked into the bungalow to be warmly greeted by Buttercup, whom I surprised laying out the packets of Rhododendron capsules.

He had not yet dined, so we had as good a dinner as we could beat up—although it hardly differed from our usual camp dinners, as the resources of Theronliang were no greater than those of the Delei valley. There was also a big mail. We talked until late. Buttercup had arranged for coolies to take us to Denning, but we decided not to move until the 31st, as we were both in need of a rest and the seeds, or rather fruits, were in need of drying.

It was still raining next day (October 30), but as we were in a comfortable bungalow, that did not much matter. In the afternoon, the sun came out for an hour, and we got some of our things dried. Our intention was now to march through to Denning in a day—about twenty-three miles, with an ascent of 4,000 feet on our side, and a descent of nearly as much to Denning. We started the coolies off early, and ourselves followed leisurely. The last marches always seem the longest, and it was a vile day, drizzling steadily, so that we had no view from the saddle. At Dreyi, just over the top, we halted for lunch, then continued downhill. Late in the afternoon the clouds rolled back, and the sun shone out; so I collected some plants—Strobilanthes, a ground Orchid with prettily-veined leaves (Odontochilus ?) and a purple-flowered Teucrium. There was nothing else of note in bloom except the common white Porana racemosa, and here and there in the forest a pink cloud of Peach blossom.

Before dark we reached Denning, and went straight off to the canteen in the fort, where we bought some tinned provisions. That night we all had a square meal. Having established telephonic communication with Sadiya, we learnt that owing to the heavy October rains, the Political Officer could not come out and bring us in, as it was impossible to get his car across the swollen Digaru river. We had therefore to march another twenty-two miles, cross the river by boat, and meet the car on November 2. Our kit was loaded on to three bullock carts, and as the carts could not do more than ten or twelve miles a day, we marched only so far as Teju the next day, and slept the night there. On the 2nd we covered eleven miles to the Digaru, which we crossed by dug-out; but the coolies waded across thigh deep, carrying our kit, the carts being unable to cross. Another mile brought us to Sanpura, where we had lunch while waiting for the Political Officer.

The forest was not particularly interesting at this season. On the outward journey the most conspicuous trees had been Erythrina indica, and Bombax malabaricum, both of which were leafless and in full bloom; Duabanga sonneratioides was also in bloom. Now the only trees in flower were Terminalia myriocarpa, and the small Bauhinia purpurea with white flowers. Another common tree I noticed along the road was Sterculia villosa, which was shedding its big Acer-like leaves—the only semi-nude tree in sight. Here and there a Talauma (T. Hodgsonii probably) was recognised by its large leaves and wooden fruits.

The Digaru, although shallow, was very wide, the milky water flowing swiftly, so that it had not yet been possible to throw a trestle bridge across. We soon reached the bungalow on the other side, one cart with our immediate necessities having come along at a good pace; so that when, about two o'clock, the P. O. turned up with his car, the kit was immediately loaded on to the carrier, the running boards, and elsewhere. Among the 'immediate necessities' was a large, awkward-looking Naga basket, filled with Orchids and with the pseudo-bulbs of the Gamboge Primula collected on October 25, which were to catch the home mail.

We were now only twenty-four miles from Sadiya, and the big car took little more than an hour to cover the distance, in spite of two ferries, and so ended the Mishmi Hills Expedition. *F. Kingdon Ward.*

THE GENUS PRIMULA.

(Continued from p. 405.)

STRICTA (Hornem.). Rigid P. (Farinosae).

A very dwarf perennial species from sub-arctic Europe, closely allied to P. farinosa, with a compact rosette of non-mealy leaves three-quarters-of-an-inch to one-and-a-quarter inch long, with oval-lance-shaped, pointed or blunt, usually entire blades gradually tapering to winged stalks equalling or shorter than the blade. Flower stem erect, three to nine inches tall, bearing an umbel of three to eight purple or violet-coloured blossoms. Corolla about three-eighths-of-an-inch across, with heart-shaped, almost entire or slightly notched lobes; tube cylindrical, about twice as long as the calyx. Flowers in June and July. Introduced in 1882.

Grows in damp, rocky pastures on the mountains of Norway, Sweden, Lapland and northern Russia.

Culture: As for P. farinosa.

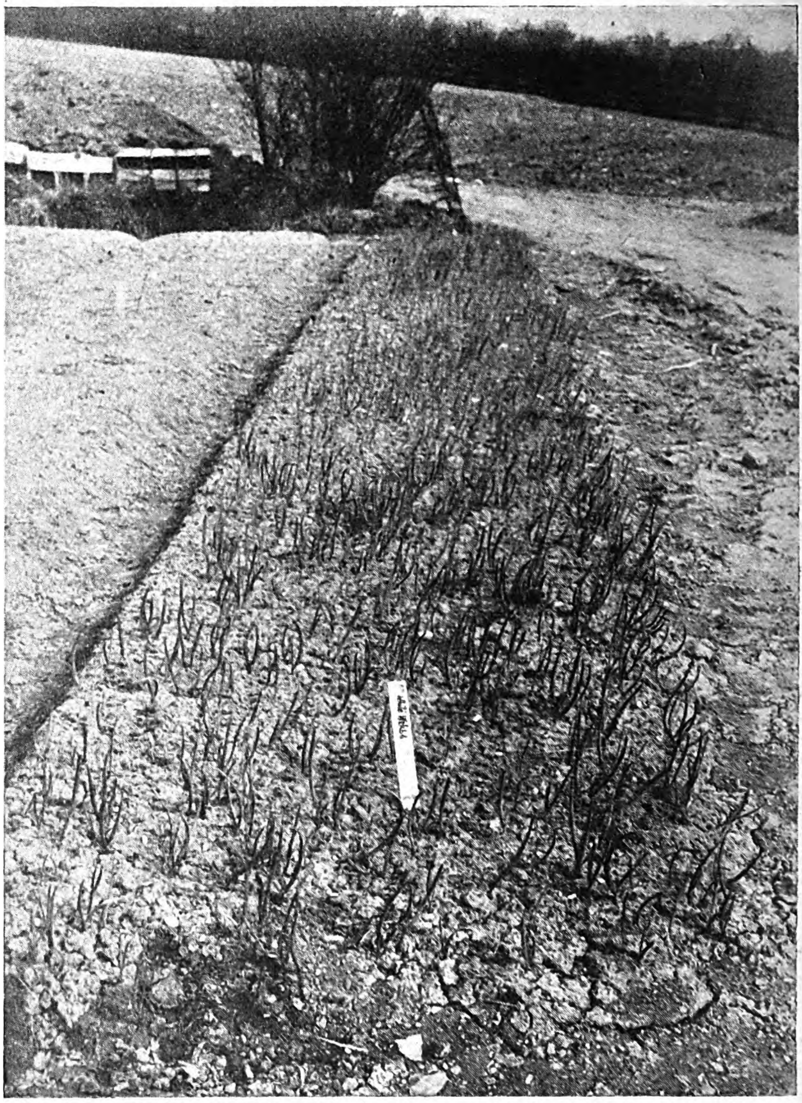

FIG. 199.—AUTUMN-SOWN ONIONS: WHITE WELSH.
(see p. 429.)

STRUMOSA (Balf. f.). Purple-leaved P. (Nivales).

A handsome perennial species with a tuft of a few leathery or somewhat fleshy, more or less erect leaves, three or four inches long, with broadly lance-shaped, blunt or rounded blades, tapering at the base to an erect, winged stalk sheathing below at the rootstock; margins somewhat cartilaginous, edged with irregular, rounded teeth; both surfaces more or less covered with very minute, glandular hairs, non-mealy, the upper surface tinted deep purple. Flower stems four to seven inches tall, dark purple, covered with golden meal upwards and bearing an umbel of about eight nodding, yellow blossoms with an orange or deeper yellow eye. Corolla about three-quarters-of-an-inch across, with oblong or nearly round, bluntly toothed lobes; tube cylindrical, slightly dilated upwards, twice as long as the calyx, with a ten-lobed ring in the mouth.

Grows in damp, alpine pastures near Champa Pumthang, in the Bhutan Himalayas, at about 14,000 feet above sea-level.

Culture: As for P. sikkimensis.

STUARTII (Wall). Stuart's P. (Nivales).

A handsome, deciduous, perennial species, with large tufts of somewhat leathery, lance-shaped, blunt leaves four to five inches long, tapering to winged stalks, dilated and sheathing at the base where they are surrounded by leaf-like scales; margins edged with small, sharp teeth; upper surface more or less smooth, underside coated with yellow meal. Flower stem robust, nine to twelve inches tall, bearing a many-flowered umbel of fragrant yellow blossoms, on stalks about half-an-inch long. Corolla concave, nearly one inch across, with rounded, entire or slightly toothed lobes; tube funnel-shaped, twice as long as the calyx. Flowers in June and July. Introduced in 1845.

Grows in swampy mountain pastures in the Nepal and Sikkim Himalayas, at about 13,000 feet above sea-level.

Culture : Plant it in good, rich, somewhat heavy loam and peat, and treat as a bog plant when in growth.

SUBTROPICA (Hand.-Mazz.). Sub-tropical P. (Obconica).

A small-flowered, little-known species with a tuft or rosette of broadly-oval or rounded, nearly entire, papery leaves, heart-shaped at the base, from one inch to three inches long; upper surface clothed with short, jointed, rust-coloured hairs, underside glaucous and densely covered with stalked glands; nerves covered with long, jointed, rust-coloured hairs. Flower stem slender, hairy, three to six inches tall, bearing an umbel of seven to fourteen pale rose-coloured blossoms on stalks about a quarter-of-an-inch long. Corolla about a quarter-of-an-inch across, with broadly heart-shaped, deeply cleft lobes; tube about as long as the calyx. Flowers in May.

Grows in the shady places among shrubs, near Beyendjing, on limestone formations, in Yunnan, at 5,000 feet above sea-level.

Culture : As for P. obconica. *A. W. Darnell.*

(*To be continued*).

AUTUMN-SOWING VARIETY OF ONION RESISTANT TO FROST AND WHITE ROT.

DURING the course of an investigation into the relative resistance of different varieties of Onions to the disease known as white rot (Sclerotium cepivorum, Berk.), the writer has come across one variety of autumn-sowing Onion which has proved itself to be not only fairly resistant to white rot for three successive seasons, but also extremely resistant to frost, particularly during the past winter season, 1928-29. This variety is named in England White Welsh; in France, Ciboule Commune Blanche; in Germany, Winterhecke Zwiebel. Strange to state, it is not a variety that is usually listed in English seedsmen's catalogues, but two different samples of seed of it were specially obtained through a Manchester seed warehouse, along with seed samples of four other varieties including the well-known and extensively grown White Lisbon Onion. This latter, although undoubtedly a variety *par excellence* for salad purposes, is, unfortunately extremely susceptible to white rot, and also rather tender to frost.

Losses estimated at upwards of fifty to sixty per cent. of the crop, due to white rot disease alone, have been found by the writer to be quite general on many intensively cultivated market gardens. Consequently, the present investigation has been undertaken partly at the request of several large market growers in Lancashire and Cheshire, to ascertain, *inter alia*, whether any other more resistant but equally serviceable variety, or varieties, exist in commerce to supplement or replace the popular White Lisbon variety. The six selected seed samples, representing varieties considered suitable for testing and comparison after preliminary trials, gave quite satisfactory germination percentages in the laboratory tests, the White Welsh No. 2 sample in particular showing ninety-two per cent. and the No. 1 sample seventy-six per cent. viable seeds. All the samples were eventually sown between July 30 and 31, 1928, at two centres, one in north Lancashire, and the other in mid-Cheshire, on ground previously tested and found to be fairly uniformly and badly contaminated with the white rot disease. At the centre in north Lancashire the seeds were sown broadcast in plots of 130 square feet each, while at the centre in mid-Cheshire they were sown in drills, the drills being about forty yards long and ten inches apart.

On September 10, 1928, all the varieties, except the two lots of White Welsh, had germinated and brairded well. It had been noted by the growers at each centre that the White Welsh seedlings were much slower in appearing above ground compared with the others, and seemed to make little or no top growth at first. On December 17, there was again the same striking difference in the average height and general appearance of the White Welsh seedlings: indeed, they were rather disappointing. However, on March 26 and 27, 1929, after several weeks of severe frost—the lowest recorded temperature on the ground having been 4°F., equal to 28° of frost—it was found that all the varieties at both centres had practically succumbed, except the two lots of White Welsh plants, which appeared to be quite unaffected and perfectly strong and healthy, and firmly established in the ground. In fact, although the ground at both centres was severely cracked and fissured and the surface slightly upraised owing to the action of the frost, the White Welsh seedlings were clinging most tenaciously to it, and on closer inspection were found to possess an unusually widespread, deep and strongly developed, fibrous root-system.

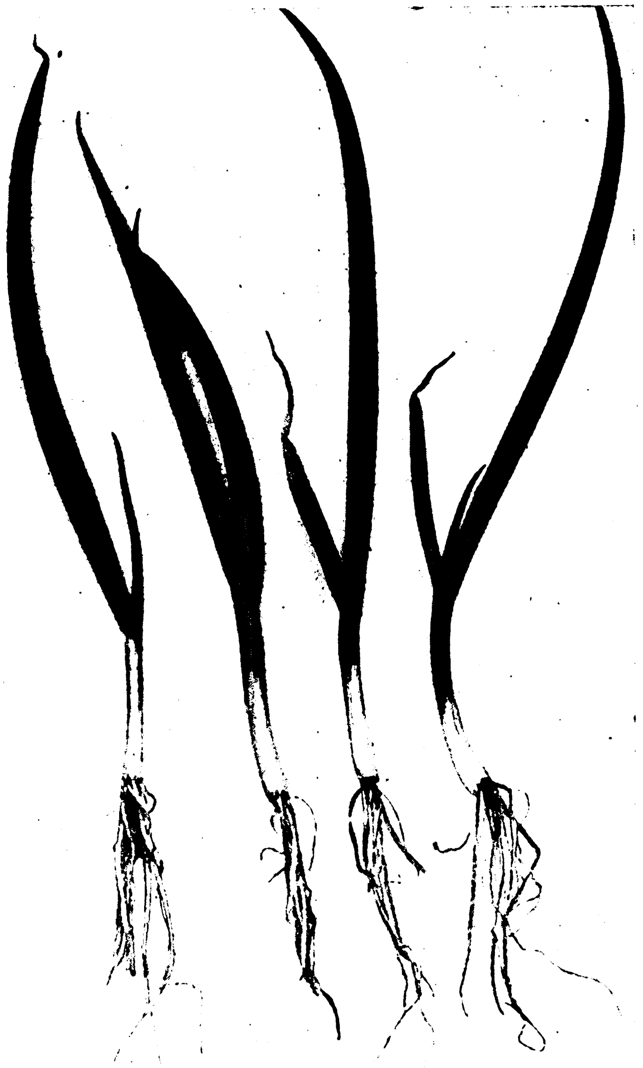

FIG. 200.—AUTUMN-SOWN ONIONS: WHITE WELSH.

About three weeks later, on April 15, 1929, they were found to have made much more rapid and steady growth and to be exceptionally strong and healthy. The accompanying illustration (Fig. 199) shows the general appearance of the seedling plants in one of the plots at the Lancashire centre on April 15, 1929, while four of the same seedlings carefully uprooted to demonstrate the extensive and vigorous character of their fibrous root-system are shown in Fig. 200. On May 17, 1929, after a spell of warm and showery weather, a few of the plants—roughly, about two per cent.— were found to be slightly attacked by white rot, and when the whole of the plants were ultimately pulled and bunched on May 20, 1929, it was noticed that the most severely attacked plants exhibited a distinct pink or dull reddish coloration in the outer epidermal region of the leaf bases and bulbs, and were obviously under-developed and inclined to run to seed. On the other hand, it was observed that the least attacked plants not only possessed the well-developed and vigorous root-system already mentioned, but also more or less pure white leaf-bases and bulbs of moderate dimensions and attractive oval shape. Fig. 201 illustrates this distinction quite clearly.

From such observations it would seem as if there were two different strains of the White Welsh variety of Onion, and that possibly, when carefully separated out and seeded, the white strain might prove most useful for growing alongside plots of White Lisbon as a stand-by or alternative variety in the event of unusually severe winter conditions prevailing, or should the land be badly contaminated with white rot. It has also been suggested by the growers that in the case of broadcasted plots of this variety, fine earth should be strewn among the young plants when they are about four inches high, so as to raise the general level of the soil surface and produce a more extensive blanching of the leaf bases, or, in the case of drilled plots, that the soil should be drawn up to the plants in the rows, since the blanching prevents the tissues from becoming green and tough and makes the young Onion plants more attractive and valuable for salad purposes. In conclusion, it may be mentioned that from the 130 square feet plot referred to above and illustrated in Fig. 199, about 204 bunches of salad Onions were pulled, and that owing to the prevailing scarcity of the White Lisbon variety through frost damage, upwards of one shilling per dozen bunches was realised for this lot of White Welsh Onions on the Blackburn market on May 25, 1929. *E. Holmes Smith, B.Sc. (Edin.), Advisory Mycologist, The University, Manchester.*

HOME CORRESPONDENCE.

The Need of Education for Gardeners.—Two very interesting letters have recently appeared in your columns under the above heading. Unfortunately, neither of the writers permitted himself to go far beyond pointing out the need for education, and offering sundry encouragements to the studious young gardener. Mr. Cuthbertson tells us (p. 371) that the right type of young men are not being attracted to the profession in sufficient numbers, and cites as The reasons the very low standard of remuneration and a dislike of country life. This statement, I believe, is not quite in agreement with the experience of many of your readers. That remuneration is not in proportion to the long training and arduous study that success demands few will deny; but that the right type of young man is not attracted in sufficient numbers is, I think, a premature conclusion. I suggest that the lack of available facilities for education is responsible for the seeming dearth of talent in the profession. I do not refer to general education, but to education in those branches of science which facilitate the application of practical experience gained by the gardener in the course of his work. Probably Mr. Kennedy-Bell (p. 330), or Mr. Cuthbertson, would commend—I almost wrote condemn—the young gardener to a study of text-books written on such subjects. Apart from the question of expense, there are very few suitable text-books to be had, and those that do exist are not sufficiently well-known among young gardeners. Besides, the study of text-books does not form a connected and graduated form of education suitable for all ages and all types of mentality; the majority being far too involved for beginners. Night school for the young gardener as a medium of education may be practically ruled out. His work mainly lies in places where his attendance at a good night-school would necessitate long journeys, often up to ten miles, to an industrial centre where such classes are held. Even then, suitable subjects are rarely taught. Apart from inaccessibility, such things as duty intervene to prevent the young gardener from attending evening classes regularly. From night school we turn to consideration of the various colleges and science institutions which cater for the requirements of the gardener. The gardening profession draws its youth largely from the lower-paid portion of the artisan class, and a course of instruction at such an institution, extending over a period of one or more years, presents a financial problem quite beyond the means of the vast majority of young gardeners. I am not in a position to write of the efficiency of the majority of these colleges, but from my knowledge of the equipment and routine of one which serves a wide area, I have come to the conclusion that the tuition provided is far from adequate. Had Mr. Cuthbertson stated that the right type of young man was not attracted to these colleges, I believe there would have been far more truthful evidence on which to base such a contention. Of the "stick in the muds," of which we are invited to believe ninety per cent of the gardening profession is composed, there is no lack of evidence to show that a large number of them are quick to answer to a sense of competition if that spirit is properly fostered. We have but to look at the many exhibitions of garden produce held all over the country, and picture the very high standard of excellence displayed. That standard is not maintained without a keen sense of competition among gardeners, young and old. We frequently hear of a gardener possessed of show fever. Why is a similar fever so rarely generated by the technical side of his profession? The numerous societies which cater for the practical side of horticulture have long ago learned the value of competitions and publicity, but when they attempt to cater for our technical requirements, these lessons are practically forgotten. How many young gardeners know of the advantages (if there are any) of possessing R.H.S. Certificates or Diplomas, or how many have any knowledge of the standard of proficiency necessary for the obtaining of such distinctions? Beyond a statement in a gardening paper that the necessary information may be had from the secretary, and a brief publication of the names of the successful students, the parent horticultural society does next to nothing to popularise its examinations. Why is not such information forwarded to all whom it may concern in the same way in which show schedules are broadcast. Horticultural science has advanced by giant strides in recent years, but the passing on of the knowledge gleaned has not kept pace with what has been achieved in this direction by other professions. Consequently, young men of a studious disposition who enter trades or commercial careers to-day have a distinct advantage over the "True Sons of Adam," apart from the accessibility of evening tuition at properly organised and conducted classes. I refer to the great advantages which such men can and do derive from postal tuition. Those in doubt of the efficiency of such tuition have but to watch the results of the various Board of Trade or City Guild examinations, and discover the part played by the various correspondence colleges in the preparation of many of the most successful students. Is it too much to ask that the Royal Horticultural Society seriously considers the advisability of compiling and running correspondence courses fitted to prepare students for the examinations held by that body? Such a policy should prove a wonderful advertising medium, bringing the Society into direct touch with thousands of young gardeners. Financially, I can see no insurmountable barrier to such a system. A reasonable charge could be fixed for a complete course of instruction, even payment on the instalment system could be arranged. Nor need the Society have any qualms about entering into competition with existing correspondence colleges, for a series of courses compiled and conducted by experts from every branch of horticulture and allied sciences would be quite unique. A pronounced step taken in this direction would mark a new era in the relations between the Royal Horticultural Society and the many gardeners and garden lovers who still remain outside its influence or appeal. Moreover, it would do much to foster that sense of competition which alone can account for the salvation of that ninety per cent. which I feel sure are also attracted to other walks of life. While quite agreeing that the studious young gardener will always work his way to the best positions, I feel that much remains to be done to mitigate the arduous nature of his climb up the mountain of knowledge. *R. Bain, Kingston Hall Gardens, Derby.*

Lonicera nitida.—No reader having responded to my request (p. 75) for information as to soil and treatment to ensure flowers and berries on this shrub, may I appeal to *H. A. P.* (p. 371) to give us the benefit of his experience, if his plants have flowered and fruited at any time. If they attained to seven feet in height, one possible factor would seem to have been present. *C. Nicholson, Tresillian, Cornwall.*

——It was encouraging to read the note on this plant by *H. A. P.*, in your issue of November 9 (p. 371). My own experience confirms that of the writer as to its hardiness. The last two winters have been exceptionally severe, but young plants of Lonicera nitida never lost a leaf, despite the fact that they had been planted only a few days when the first severe frost of 1927 fell upon them. It is a much more hardy hedge plant than the Golden Privet, for the latter has suffered severely each winter, losing all its leaves and many shoots. One can readily believe that it will largely supersede the Privet as a hedge plant, not only on account of its beauty, but because of its ease of propagation. Not only will every tiny shoot root readily, but large, woody growths dibbled into sand, and placed in a warm house or frame, root in an astonishingly short space of time. Some of these large cuttings, placed in sand in a Cucumber house, sent out roots all along the portion of stem buried, and also masses of aerial roots to an inch above the sand. For comparison I put in large cuttings of the Honeysuckle and Golden Privet, together, during the summer. The former rooted, were hardened off, and are now in position in the hedgerow. The Privet has not yet formed a root. The Honeysuckle can be layered successfully. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

Prunus Pissartii Fruiting.—I have this week picked a fruit of Prunus Pissartii, and as I think this happens but rarely here in north Northumberland, I am anxious to know whether this tree has been recorded as producing fruits so far north before. *S. S.*

Linaria alpina.—Your correspondent, *L. B. C.*, writing about Linaria alpina (p. 364), seems unduly to magnify the difficulty of growing this charming little plant. I have grown it for three years, starting with one plant, and this year I have consigned hundreds to the rubbish heap, as it seeds itself about like Chickweed. I started it in the moraine, but it has now spread to all parts of the rock garden, and is rapidly making a nuisance of itself. The first year I saved seeds and found no difficulty in germinating them in pans. My soil is a light, sandy loam. In view of its readiness to seed, I take no precautions to save the plants through the winter. Saponaria caespitosa I also find comes very readily from seeds. *R. Ginns, Dernford, Desborough.*

The New Forest.—Being a native of Ringwood, on the western border of the New Forest, and well acquainted with some parts of the latter, I should like to thank you very much for your leading article dealing with the New Forest in your issue of November 16. It is an extremely fascinating place, which all nature-lovers, I think, whether natives or not, soon learn to love. I would, however, point out that the Scots Pine is native in the forest, quite apart from the enclosures (plantations), and therefore is a natural feature which should not be suppressed, no matter how much the plantation mania of the Forestry Commission may be deprecated. *C. Nicholson.*

Coloured Raffia and Begonias.—An unusual and rather disturbing experience attended the use here of green Raffia on winter-flowering Begonias of the Gloire de Lorraine and Optima types, and it may be of some interest—and, perhaps, a timely warning—to your readers if I recount the details. The plants were staked and tied in the usual way with ordinary white Raffia until some few weeks ago, when it occurred to me, in view of the fact that many of them would be required as specimen plants for decorating, the substitution of green tying material would assist in giving a better "finish," and consequently I procured a small quantity from a local sundriesman. I ought, perhaps, to explain that I went to a local shop, in preference to the usual firms of horticultural sundriesmen, as the quantity required was negligible, and to save the unavoidable delay necessitated when ordering by post. The Raffia was used in due course, and in less than a week the points of various plants were seen to have dropped down as though they had been broken nearly off, but not severed clear, and on closer investigation it was found that the coloured Raffia was the cause of the trouble. Practically every shoot secured with this material was found—more or less—to be affected. Some varieties, notably Mrs. Petersen, were in the advanced stage of being "eaten" through (this seems to be the only expression that aptly describes the phenomenon), but all varieties—including the stouter-growing Optima—were affected. Certainly the latter was not so badly affected as the varieties of the Gloire de Lorraine group, but the brown "rust-like" markings on the stems proved conclusively what would have been their fate also, had the Raffia been allowed to complete its devastating work. The only theory I can advance is that there must have been some sort of acid applied to the material—either accidentally or in the colouring process—when being dyed, that caused the mischief. Has any reader had a similar experience, or is anyone able to throw light on the cause? I have used green Raffia on many previous occasions—happily, with more satisfactory results—and on a variety of subjects, but I shall be loath to employ it for Begonia tying again. *T. W., Shugborough.*

Sempervivella alba.—This plant, the subject of M. Correvon's enquiry (p. 382), is figured in the *Bot. Mag.*, t. 8,985. In the accompanying text by Dr. Otto Staft, it is stated that, although the origin of the plant in cultivation is not precisely known, Sempervivella alba appears "to be identical with a plant not uncommon, as Mr. J. S. Gamble informs me, on the mountains around Simla. This plant was originally (1846) described as Sempervivum album, by Edgeworth, who had collected it at Kranda, Simoor (?). I have not been able to trace exactly the locality Kranda given by Edgeworth for his Sempervivum album, but internal evidence points to its being in Simor or one of the adjoining Simla Hill states." *W. T. Stearn, Cambridge.*

Preservation of Dahlia Roots.—The excerpt, on page 379, from *The Gardeners' Chronicle* of Seventy-five Years Ago, is, as ever, very interesting. But how the Dahlia appears to have improved; or should it be deteriorated? Or, again, is it the present-day gardener who has improved or deteriorated, as the case may be? No longer do we find it essential to preserve the Dahlias fibrous roots with the greatest care, nor do our plants require constant nourishment when in a dormant state. Dahlias appear to have degenerated into coarse-fibred things which survive, retain, and develop their "nascent buds" if lifted from the ground, almost immediately after the shoots have been cut off, and placed in the store. So far from immediately covering the fibrous roots of the tubers with sand or earth, some of us, in our ignorance, have placed the Dahlias upside down for a time beneath a greenhouse staging, to the utter destruction of these so essential fibrous roots! And our Dahlia tubers have lived to produce good flowers another year. *A. C. B.*

FRUIT GARDEN.

THE FRUIT STORE.

THE surroundings of both Apples and Pears in the store should be fresh, sweet and clean. A musty atmosphere is bound to be reflected in the flavour of the fruits, and while a low temperature is desirable to maintain a long season of maturity, an equable temperature, either high or low, is even more to be preferred. By that, I mean, Apples stored in a uniform temperature of 45° have kept quite as perfect and retained their flavour better than those stored in a temperature of 33°. The only difference was in date of maturity, those kept at the higher figure matured earlier and their season of table quality was considerably shortened. Fluctuations of temperature affect keeping qualities, and temperatures too low affect table quality. Hence it is that many gardeners who store at the lower temperature draw from the store a week's supply of dessert fruits at one time, and place these fruits in a warm vinery or on a shelf in the Melon house to bring out that flavour and aroma which are so desirable.

The greatest factors, however, in the successful storage of hardy fruits are, to grow fruits free from insect and fungus damage, care in gathering, and gathering at the proper time, for if gathered prematurely, shrivelling invariably follows.

The Food Investigation Board's report for the year 1928 has just been issued, and, as usual, contains a valuable amount of information. In dealing with the effect of temperature and other factors on the storage of Apples, the report states: "One outstanding result of importance to plant physiology is the discovery of a 'climacteric' (critical period) in the life of the Apple. It occurs at maturity and is marked by a large increase in the rate of respiration, a change in character of respiration, which is indicated by an alteration in the ratio between the amounts of carbon dioxide given off and of oxygen taken up, and by the rapid production of these chemical substances which confer upon the fruit its flavour and aroma." One of the most interesting problems under investigation at present is stated to be the significance of the stage of maturity of the fruits when gathered. This is known to have a profound effect upon their keeping qualities.

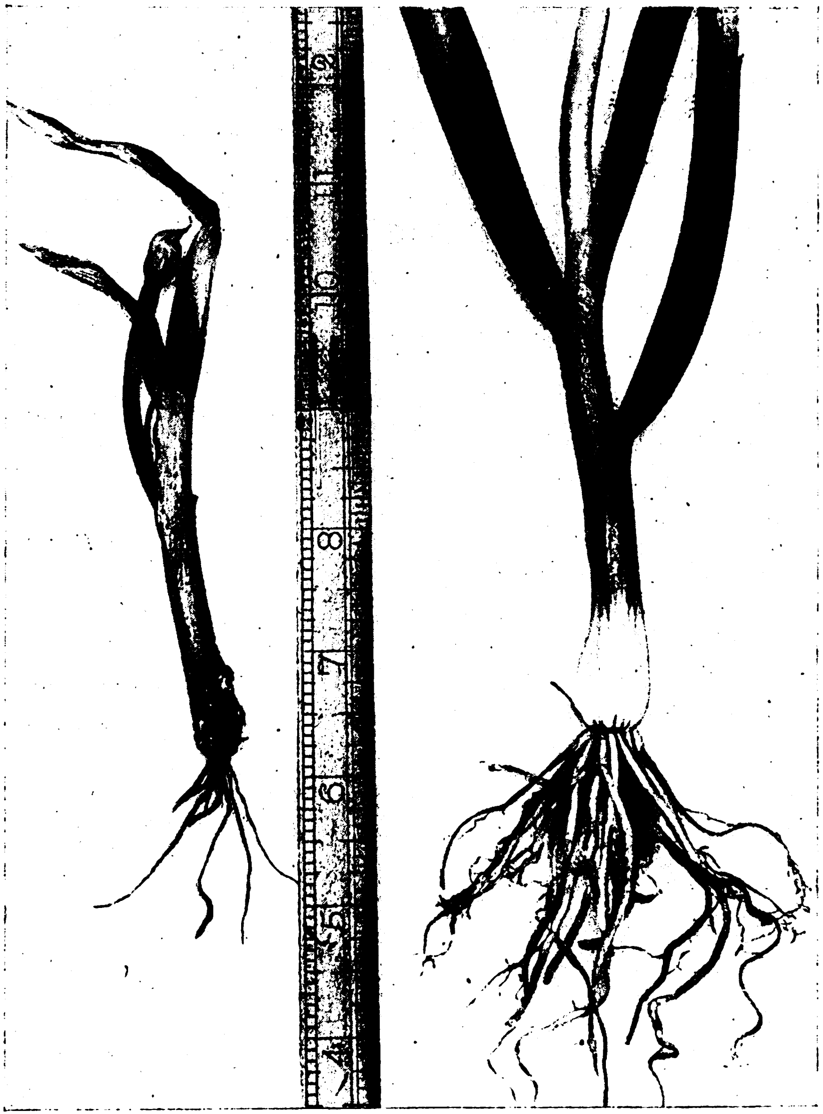

FIG. 201.—AUTUMN-SOWN ONIONS.
Showing diseased plant (left) and clean plant (right).
(see p. 429.)

That light should be excluded from the fruits in store is an injunction which has been handed down from the earliest times. But I do not know of any experiments carried out in this country bearing on the point of why darkness is so essential. Some years ago, however, Messrs. Revière and Pichard, of France, carried out some experiments, and the results of these were published in the French *Journal of Horticulture*, a summary of which was published in *The Gardeners' Chronicle* of August 27, 1921 (p. 107). A note or two from this summary may be of interest.

The experimenters state that where the object of storing fruits in the fruit room is to delay its maturity, darkness is important. The authors, on November 27, commenced experiments with two small lots of the Apple Calville Blanc, exposing one to diffuse light and the other to darkness. On February 12 of the following year, only those fruits which had been exposed to diffuse light were ripe. Those which had been left in darkness were not ready until several weeks later. Analysis of the dark-kept and the light-kept fruits showed that whereas the total sugar content had decreased in both, it had decreased considerably more in the light-kept Apples than in those maintained in darkness. This is in conformity with what the plant physiologist would expect, namely, that glucose is the sugar which is used up in the course of respiration. It would seem to follow that respiration of fruits such as Apples is appreciably more rapid in light than in darkness, and that light would, in some circumstances, be a useful aid in speeding up the ripening process.

In *Modern Fruit Growing*, by Mr. Seabrook, Chelmsford, the author, commenting on the storage of fruits, states: "Apples grown in grass or partial grass are notoriously better fitted for storage than Apples grown under highly manured or forced conditions. . . . . . Apparently the dominating factor is a low nitrogen content and more fibre. Also Apples from mature trees keep much better than those from young trees; small and medium-sized Apples keep better than large, coarse, ill-finished ones." *H. H. Cook.*

SOCIETIES.

NORFOLK AND NORWICH HORTICULTURAL.

This is the centenary year of the Norfolk and Norwich Horticultural Society, and the Society has celebrated this event by holding three large shows—a Spring Show, a Summer Show and an Autumn Show. The summer show was a big affair, and, as reported in these pages, it included the provincial show of the National Sweet Pea Society. On the occasion of the Autumn Show, held on November 21, 22 and 23, in the spacious and beautiful St. Andrew's Hall, and its corridors, it entertained a deputation from the National Chrysanthemum Society in the person of Mr. Charles H. Curtis.

The exhibition was a fine one, competition was unusually good, and the quality in every section reached a very high level, but especially in the classes for Single Chrysanthemums, Pears and vegetables.

Groups and Plants.

Only one group of Chrysanthemums was staged, and to this bluntly conical exhibit the first prize was awarded; popular Japanese, Incurved, Single and Decorative varieties were included, and Coleuses, Ferns and Dracaenas were used to furnish the base of this exhibit from the Parks Department of the Norwich Corporation

Competition was quite good, however, in the pot plant classes. For three Japanese varieties, in pots not exceeding ten inches in diameter, the Norwich Corporation Parks Department led with freely-flowered examples of Jean Pattison, Rose Day and Blanche de Poitou, C. C. Bond, Esq., coming second, and including in his set an excellent example of Mrs. Keith Luxford.

For three plants, distinct varieties, of Single Chrysanthemums, the Norwich Corporation Parks Department again led, showing Juno, White Model and Laddie; the second prize fell to J. R. Imrie, Esq. (gr. Mr. G. Fowler), New Catton; and the third to E. C. Bond, Esq.

Among miscellaneous plants, Cyclamens were best shown by Colonel H. G. Barclay (gr. Mr. W. G. Barrie), Colney Hall, who also showed the best Chinese Primulas; W. T. F. Jarrold, Esq. (gr. Mr. A. E. Wood), Beeston St. Andrew's Hall, had the best Primula obconica and the best P. kewensis, and Miss E. M. Hacker (gr. Mr. J. King), Great Ormesby, the best P. malacoides, finely flowered. Salvia splendens was best shown by the Norwich Corporation Parks Department—fine big plants, while the Misses McLintock (gr. Mr. G. R. Wright), The Grove, Norwich, led for Begonia Gloire de Lorraine, and E. J. Edwards, Esq. (gr. Mr. E. R. Matthews), led in the class for any other Begonia, with B. Clibrani.

Cut Blooms.

Four competitors came forward in the class for three dozen Japanese blooms in not fewer than eighteen varieties, on boards. The premier set was shown by the Lowestoft Corporation Parks Department, the best blooms being those of Charles Davis, Lady Miller, W. Rigby, Mrs. G. Drabble, Mrs. J. Gibson, Louisa Pockett, Miss A. Ellis and Red Majestic; second, Mrs. H. Thompson (gr. Mr. F. Wiles), Middleton Hall; and third, Mrs. Barker Hahlo (gr. Mr. A. Bentley), Langley Park. Apparently there was but one entry of twelve Japanese blooms, and this, deservedly awarded the first prize, came from Mrs. C. M. Hacker (gr. Mr. J. King), whose best flowers were of W. Rigby, Yellow Majestic, Mrs. H. Wells, Mrs. G. Drabble, Louisa Pockett and Red Majestic.

The Lowestoft Corporation Parks Department led in the class for thirty-six Japanese blooms, shown in vases; this set was a good one and consisted of Mrs. R. C. Pulling, W. Rigby, Louisa Pockett, Princess Mary, General Petain, Mrs. G. Drabble, Mrs. J. S. Kelly, Madame O. J. Guillot, Queen Mary, Dawn of Day and Barbara; second, Mrs. Barker Hahlo.

The finest Japanese blooms in the show were found in the class for eighteen blooms, in six varieties, shown in vases, and here the Norwich Corporation Parks Department (Superintendent Captain Sandys-Winsch), excelled itself by winning the first prize and the N.C.S. Silver-gilt Medal, with superb flowers of Victory, Louisa Pockett, Majestic, Princess Mary, Thomas W. Pockett and Mrs. G. Drabble; the flowers of Victory were unusually fine. Second, the Misses Colman; third, Mrs. C. M. Hacker.

The Norwich Corporation Parks Department was successful in winning the premier award for six vases of sprays of Japanese Chrysanthemums, with Rose Chocod, Captain Kettle, Jean Pattison, Theresa, Madame L. Valet and Ra; second, the Lowestoft Corporation. The best six vases of sprays of Single Chrysanthemums were staged by the Norwich Corporation Parks Department, and the varieties shown were Edith Dimond, Juno, Fairy, Hon. Edith Smith, Mona and Mrs. T. Hancock; second, the Misses Colman; third, Brig.-Gen. Sir T. Jackson (gr. Mr. H. Aldis), Herringfleet Hall, Lowestoft.

First prize for eighteen varieties of Singles, three blooms in each, in vases, was won by the Misses Colman (gr. Mr. A. Gulvin), Carrow Abbey, Norwich, with quite good flowers of J. Palmer, Walter Howe, Bob Greenfield, Kitchener, Susan, Isabel Felton, Sandown Radiance, Mollie Godfrey, Mrs. Harry Woolman, Red Molly, Fantasy, Alert, Hon. Edith Smith, Mrs. E. Page, Miss A. Wisby, Edith Dimond and Bronze Molly; second, the Lowestoft Corporation Parks Department (Superintendent Mr. G. H. Smart); third, Miss H. Thompson (gr. Mr. F. Wiles), Middleton Hall.

There was fine competition in the class for twelve varieties of large Singles, three blooms of each, in vases. There were five entries, and the premier award was won by Major A. L. Bruce (gr. Mr. W. C. Dean), Brooke Hall, Norwich, with glorious blooms of Miss A. Wisby, Red Molly, Susan, Mrs. W. E. Hutchinson, Kitchener, Margaret, Supreme (very fine), Bronze Molly, Isobel Felton, Juno, Robert Collins and Molly Godfrey; second, Bertram Hall, Esq. (gr. Mr. F. A. Double), Blundeston; third, Mrs. Barker Hahlo. The premier set in this class contained the finest Singles in the show, and it was awarded the National Chrysanthemum Society's Silver Medal by the N.C.S. Deputation.

In the miscellaneous cut flower classes, Carnations and Violets were well shown, Colonel H. G. Barclay leading with the former. An interesting class was one for sprays of berried shrubs. Colonel H. G. Barclay led for six kinds with fine examples of Stranvaesia Davidiana var. undulata, Cotoneaster frigida, Celastrus articulatus, Euonymus radicans var. variegata, Viburnum Opulus and Berberis subcaulialata.

The decorative section was well filled, but as almost every exhibitor had chosen either yellow or very light bronze flowers, the general effect was somewhat monotonous. The leading prize-winners were Major A. L. Bruce, for a large hall vase; and Miss M. C. Palmer, for a basket, with Mrs. Sandys-Winsch, second.

Fruits.

Fruits are usually shown in fine condition at Norwich, and there was no falling off in this section on November 21. Nearly fifty classes were provided, and in most of these the competition was excellent.

Mrs. Barker Hahlo exhibited the finest set of nine varieties of dessert Apples, showing clean, good-sized and highly coloured examples of Wealthy, Cox's Orange Pippin, d'Arcy Spice, Charles Ross, Laxton's Superb, Ribston Pippin, Blenheim Pippin, American Mother and Allington Pippin; second, the Hon. W. K. Rous (gr. Mr. T. Simpson), Worstead House, Norwich.

J. A. Christie, Esq., M.P. (gr. Mr. S. High), Framlingham Pigot, Norwich, led for six varieties of dessert Apples, and G. E. White, Esq. (gr. Mr. T. Ludkin), Eaton House, led for three varieties.

The Hon. W. K. Rous won first prize for nine varieties of culinary Apples, and Mr. C. D. Wigan a similar honour for six varieties.

Among classes for special varieties, Mr. C. D. Wigan (gr. Mr. F. W. Wilby), led for Allington Pippin, and J. Kennington, Esq. (gr. Mr. W. Palmer), Surlingham, led for Charles Ross.

A splendid collection of nine varieties of Pears, five fruits of each, won first prize for Lord Suffield (gr. Mr. A. J. Jones), Gunton Park, Norwich, in a keen competition. His set consisted of grand specimens of Beurré Alexander Lucas, Doyenné du Comice, Beurré Dumont, President Barabe, Durondeau, Marie Louise, Pitmaston Duchess, White Doyenné and Charles Ernest.

J. A. Christie, Esq., M.P., scored a fine win in the class for a collection of six varieties of Pears, five fruits of each, showing splendid examples of Charles Ernest, Emile d'Heyst, Durondeau, Easter Beurré, Winter Nelis, Doyenné du Comice and Prince Napoleon second, the Hon. W. K. Rous.

Lord Suffield led for six bunches of Grapes, winning with good clusters of Muscat of Alexandria and Lady Downes; the same competitor led for three bunches of Alicante Grapes, and showed the best collection of twelve varieties of fruits, in which Pears were a fine feature. Lord Suffield had the finest Doyenné du Comice Pears, the best dish of Marie Louise, and the best dish of Glou Morceau. Major Rous and J. M. Christie, Esq., M.P., were also successful exhibitors in these single-dish classes.

Vegetables.

The vegetables displayed in the several classes provided for collections were good, and there were frequent surprises in quality of those staged in single-dish classes, where Leeks, Celery, Brussels Sprouts, Parsnips and Beets were presented in quantity and unusually fine quality.

In the classes for collections of vegetables, the most successful competitors were the Hon. W. K. Rous, Mrs. Barker Hahlo, Mrs. D. H. Lane and G. C. Lang, Esq. (gr. Mr. T. Sheldrake), Great Plumstead Hall, Norwich.

Commercial Fruits.

A large exhibition of fruits, chiefly Apples, was set out in the Blackfriars Hall. This was arranged for the purpose of demonstrating the successful cultivation and packing of fruits for commercial purposes in East Anglia, and it fulfilled that purpose. In regard to cultivation and colour the samples were excellent, while in packing there was evidence of much care and skill.

Some of the principal prizewinners in this section of the show were Colonel Petre, Westwick; Miss Cannell, Lodden; Mrs. Blofield, Mrs. S. Rope, Broom Fruit Farm, Mr. A. Foord, and the Colton Fruit Farm.

GLASGOW AND WEST OF SCOTLAND.

At the Annual Meeting of the Glasgow and West of Scotland Horticultural Society, held on November 6, Mr. Isaac Fleming, Director of Parks, Paisley, presided over a crowded attendance of members. The Directors reported that there was an increase of 1,173 entries at the Autumn Show, and that the membership had increased by 45 to 812, while the financial statement for the past year indicated a balance of revenue over expenditure amounting to £107; the invested funds were valued at £361, and the cash assets, £332. In the course of the discussion on the reports, complaint was made by several members with regard to a condition in operation at the September Show, whereby the deposit of 2s. 6d. paid by competitors was forfeited if all the entries were not staged. The income from that source amounted to £18 7s. 6d., and it was pointed out that the rule was not in operation by any other Society. There were seventeen candidates for the seventy-three vacancies in the Directorate, and a card vote resulted as follows:—Nurserymen: Messrs. John Cairns, Thomas Dagg, Alexander McAlpine and T. B. Kerr. Gardeners: Messrs. Isaac Fleming, James Cuningham, Alexander Davidson and A. T. Harrison. Amateurs: Messrs. D. Cowell, John Bell, Thomas Nelson, J. H. McDonald and Donald Gunn.

BRITISH CARNATION.

November 20 and 21.—The thirty-seventh show of this Society, which was held in the Horticultural Hall, Vincent Square, Westminster, was one of the most successful winter shows the Society has held. A large display of Carnations could not be expected, but there were exhibits in each of the fifty-seven classes, and in many the quality of the blooms reached an exceptionally high standard. In addition to these competitive exhibits there were several excellent trade displays of Carnations which, with some miscellaneous floral exhibits, garden sundries and paintings, helped to make a bright and interesting show. Seven novelties were submitted for award, but only one was found to be sufficiently worthy of recognition. On the evening of the first day a most successful dinner was held at the Restaurant Frascati, Holborn, where the large company was entertained by witty speeches and a pleasantly varied musical programme.

First Class Certificate.

W. H. Wallace.—This is an excellent novelty, quite distinct in its deep salmon colouring from any other greenhouse Carnation. The flowers are well-formed, of good size, have plenty of substance, and are carried erect on sufficiently long, stout stems. The only quality of the ideal Carnation that the variety lacks is that of perfume. This splendid novelty was raised by the late Mr. W. H. Wallace and shown by Mr. W. E. Wallace, Eaton Bray.

Open Classes.

There was not the usual competition for the *Daily Mail* Challenge Cup, which was offered this year for the best scented Carnation not in commerce prior to 1927. There were only two entries, and the Cup was again awarded to the deliciously fragrant variety Mavis, shown by Messrs. Walter Hemus, Ltd. Blanche, a good large, white variety, shown by Messrs. Engelmann, Ltd., did not, on the day, emit fragrance to any noticeable extent.

Only Messrs. C. Engelmann, Ltd., staged twenty-five blooms each of seven varieties, and theirs was a splendid exhibit well worthy of the Monro Challenge Cup which was awarded. The varieties were Maine Sunshine, Sunny, Laddie, Red Laddie, Ivory, Mrs. W. Hemus and Citron. Of the two exhibits of twelve blooms of each of any three British novelties, shown in separate vases, the better was by Messrs. Allwood Bros., who showed Rapture, Wivelsfield Apricot and Guy Allwood. Messrs. C. Engelmann, Ltd., were second, with Sunny, Hebe and Blanche.

Only two competed in the class for fifty blooms of Laddie—and the American Carnation Society's Challenge Cup was won by Mr. E. Pulbrook with splendid blooms; Messrs. C. Engelmann, Ltd., were a good second. The three vases of one hundred blooms each of any one variety made an imposing display, and the best set was of superb blooms of Laddie, shown by Messrs. C. Engelmann, Ltd.; Mr. E. Pulbrook was second with Spectrum of good quality. Only Messrs. C. Engelmann, Ltd., showed a vase of fifty flowers in four varieties, and they were awarded the first prize for beautiful blooms of Maine Sunshine, Red Laddie and Topsy. Magnum, shown by Messrs. H. T. Mason, was the best of six exhibits of a vase of twenty-five blooms of a British-raised Carnation not yet in commerce, and Messrs. Walter Hemus, Ltd., were second, with Lassie. Topsy was shown by both exhibitors in the class for twenty-five blooms of any fragrant crimson variety, and the first prize was awarded to Messrs. C. Engelmann, Ltd., for splendid blooms, with Messrs. H. T. Mason close competitors.

Only Messrs. C. Engelmann, Ltd., set up twenty-five blooms each of three distinct colours, and they were awarded the first prize for handsome blooms of Laddie, Improved Ward and Startler. In each of the following colour classes twelve blooms of a distinct variety were required. Ivory, shown by Messrs. C. Engelmann, Ltd., was the best white, with Arctic, shown by the same exhibitors second, and White Pearl, shown by Messrs. Allwood Bros., third. Laddie is undoubtedly the best light pink variety, for it was shown by Messrs. C. Engelmann, Ltd., who were first, and by Messrs. Allwood Bros., the second prize winners. The best medium pink Carnation was Gladys, and Rapture was second, both being shown by Messrs. C. Engelmann, Ltd. Betty Lou, by the same exhibitor, was the only deep pink variety shown. Messrs. H. T. Mason had, in Spectrum, the best red variety, and Red Laddie, set up by Messrs. Engelmann, Ltd., was second. Topsy was shown both by Messrs. Allwood Bros., who were first, and by Messrs. H. T. Mason, who were second, in the class for a crimson variety.

Circe Improved, shown by Messrs. C. Engelmann, Ltd., was the only variety in the class for any purple, mauve or violet variety, and it was well worth the first prize which was awarded. The best vase in the class for any yellow or yellow-ground Fancy was of richly coloured, Maine Sunshine, and Wivelsfield Buttercup, staged by Messrs. Allwood Bros., was second. Chintz was the only variety shown in the class for any Fancy other than yellow ground; Messrs. Allwood Bros. were first, and Messrs. C. Engelmann, Ltd., were second, although the positions were reversed in the class for a vase containing a bloom of each of twelve colour classes. Maud Allwood, well shown by Messrs. Allwood Bros., was first, and a good vase of Sunny, staged by Messrs. C. Engelmann, Ltd., was second in the class for twenty-five blooms of apricot and yellow shades.

Messrs. Allwood Bros. were first in the class for two boxes of Carnation blooms as packed for market and sent by rail. Their box of Chintz was very fresh and beautiful. Messrs. C. Engelmann, Ltd., who were second, were awarded the Silver Challenge Cup in the class arranged to test the keeping qualities of Carnations.

Amateurs' Classes.

On this occasion there were only two exhibits of twelve Carnation plants, and both illustrated first rate cultivation. The first prize was awarded to Lady Emsley Carr (gr. Mr. J. T. Doe), Wonford, Walton-on-the-Hill, for sturdy, well-flowered specimens of such varieties as Betty Lou, Red Laddie, Topsy, Spectrum and Nero. Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex, was second, with taller plants which, in a month's time, will be of great merit. His chief varieties were Canadian Pink, Mrs. Hamilton Fellowes and Mary Allwood.

In the class for a decorative arrangement of not more than one hundred cut Carnations on tables measuring six feet by three feet, Samuel Wallrock, Esq., was an easy first, with an artistic display of good blooms in gilt baskets and vases arranged on black velvet and with appropriate foliage. Lady Emsley Carr was awarded the second prize for what was merely a collection of exceedingly good blooms set up in the R.H.S. show vases with no attempt at "decorative arrangement."

In the vase classes of the amateurs' section the competition was decidedly better than at some previous shows of the Society, and the high quality of many of the exhibits has rarely, if ever, been surpassed. Lady Emsley Carr was first in the class for novelties distributed by Messrs. Stuart Low and Co., and Mr. W. Holder, New Lodge Clinic Gardens, Windsor Forest, was a good second.

There were no fewer than nine exhibits in the class for five blooms in at least three varieties raised by the exhibitor, and the Challenge Cup was won by Lady Gregory (gr. Mr. T. C. Selwyn), Shoreham House, Sevenoaks, with a very creditable collection. Mrs. Walter Burn (gr. Mr. G. H. Wright), North Mymms Park, Hatfield, was first in the class for a decorative vase of not more than twenty-three blooms of Carnations, with a delightful arrangement of superb blooms, and Mr. Henry Atkins, Kingswood Manor Gardens, Tadworth, was an exceedingly good second.

The colour classes also contained particularly good blooms. Mr. Atkins was first with White Pearl, and with Laddie, pink; Mrs. E. M. Walrond (gr. Mr. D. Mitchell), Burton Grange, Cheshire, was first with Mrs. C. W. Ward, medium pink; Master M. Stoop, deep pink; Circe Improved, purple; and Saffron, yellow. Mrs. Burns won first prizes with Topsy, crimson; Circe, violet Fancy; and Red Laddie, red. The last-named variety was of such superb quality as to win the Campbell Amateur Trophy and the Silver-gilt Medal, as well as the first prize in the class which contained many vases of exceptionally high quality.

The Countess of Lisburn (gr. Mr. O. C. Wallon), Cronswood Park, Aberystwyth, also had particularly fine blooms which won the prize offered by Messrs. Allwood Bros. for twenty-four blooms of their novelties, and first prizes in three of the four classes arranged for members who were unable to attend the show. The fourth first prize was won by Mr. W. O. Marshall, Bere Court Gardens, Pangbourne, with a good vase of Topsy.

In the classes for amateurs who do not employ a full-time gardener, Mrs. Kathleen Simpson, Ashton-on-Ribble, was particularly successful in the colour classes, winning first prizes with excellent vases of White Pearl, Laddie, Master M. Stoop, Red Laddie and Topsy.

Decorative Classes.

In the amateur's section, the dinner table decorations were mostly very pretty and attractive in the conventional style of arrangement; Mr. Alfred Swann, Warninglid Gardens, Haywards Heath, was placed first for a rather solid display, with a central arrangement of Spectrum with Croton leaves, grasses and Asparagus plumosus. Mrs. Swann was second, with a table of orange and yellow Fancy Carnations with foliage. Mrs. W. Holder was third with a graceful table of pink Carnations, trails of yellow Selaginella, Asparagus and Grasses; Gus Mayer, Esq. (gr. Mr. R. Cottam), Whistler's Wood, Woldingham, arranged a table which would have pleased most of the visitors a day earlier when all the blooms were quite fresh.

The decorative bowls and baskets were beautifully arranged. Mr. H. Atkins was first with the former, and Mrs. Swann excelled with the latter.

The professional florists dinner table decorations were very bizarre. Mr. W. B. Shearn was placed first, Messrs. Robert Green, Ltd., second, and Messrs. Selfridge and Co., third.

Non-Competitive Exhibits.

Although not numerous, the trade groups of Carnations contributed considerably to the general bright effect, and many grand blooms were shown.

The most spectacular group was that set up by Messrs. C. Engelmann, Ltd. It was tastefully arranged and the blooms were in splendid condition. There were large vases of such splendid sorts as Laddie, very fine; Spectrum, Red Laddie, Ivory, a very attractive white Carnation with frilled petals; and Rouge, very bright. Outstanding among the numerous other sorts displayed in smaller vases were Sceptre, Mrs. C. W. Ward, Gladys, Maine Sunshine, Startler, Topsy, White May Day, Lady Baker, Lady Northcliffe, Mrs. W. Hemus, and Betty Lou.

Messrs. Stuart Low and Co. had in a very charming display, large sheaves of Eileen Low, Melchet Beauty, Philip Sassoon, Topsy, Daphne and Lady Hindlip in the background, with nicely arranged vases of White Pearl, the lovely pink Joyce Low, Thomas Ives, Red Laddie, Spectrum, Laddie, Sunny, Ann Horton, Zorro, the light scarlet R. A. Nicholson, and Mrs. A. J. Cobb, and several others.

In a splendid collection of lovely, clean blooms, Messrs. Allwood Bros. showed Spectrum, Laddie, Wivelsfield Pink, Shot Silk, Allwood's Q. Q., Wivelsfield White, Harmony, Wivelsfield Buttercup, Red Laddie and Topsy, these being the pick of the collection; they also arranged an interesting exhibit of Carnation publications, perfumes, seeds, fertilisers and various implements, etc., necessary to Carnation culture.

Messrs. Keith Luxford and Co. set up a small collection of Carnations, among which White Wonder, Early Rose, Betty Lou and Abundance were notable; they also showed Chrysanthemums.

There were several exhibits of flowers other than Carnations. Orchids were shown by Messrs. Stuart Low and Co.; Cyclamens by Messrs. Blackmore and Langdon; Chrysanthemums by Mr. A. G. Vinten; and Violets by Mr. G. Zambra and Mr. B. Pinney.

Exhibits of sundries included various types of watering-cans, by Messrs. Hawes, Ltd.; and pruning implements by Mr. C. A. Jardine. Miss Alice Baker showed her special metal flower holders, and demonstrated how they should be used by arranging attractive bowls of flowers.

At seven o'clock on the evening of the first day of the show, one hundred members and visitors gathered at the Restaurant Frascati, Oxford Street, for the Annual Dinner of the Society. The evening was a most enjoyable one, and everything went without a hitch; the dinner was excellent, the speeches brief and interesting, and the musical and other forms of entertainment delightful.

The speakers included Lt.-Col. F. R. Durham, Mr. E. T. Willis (President), Mr. J. S. Brunton, Mr. H. Cowley, Mr. L. J. Cook, who proposed the toast to "The Ladies" in very gallant fashion; Mr. Samuel Wallrock, Mr. M. C. Allwood, Mr. C. Engelmann, Mr. R. Campbell and Mr. J. D. Simpson.

Other notable persons present included Mr. David Ingamells, Mr. C. J. Hammond, Mr. George Allwood, Mr. and Mrs. C. J. Miller, Mr. and Mrs. C. S. Bateman, Mr. and Mrs. P. F. Bunyard, Mr. T. Stevenson, Mr. J. Stevenson, Mrs. W. H. Page, Mr. and Mrs. Stuart Monro, Mr. and Mrs. W. Holloway, Mr. A. C. Bartlett, Mr. T. Hay, Mr. A. Bedford, Mr. and Mrs. W. E. Tucker, Mr. and Mrs. W. B. Shearn, Mr. Keith Luxford and Mr. and Mrs. F. W. Alesworth. The press was also well represented.

Mr. Alesworth, the Secretary of the Society, is to be congratulated upon the excellent arrangements which made the dinner so successful.

DUNFERMLINE HORTICULTURAL.

The forty-ninth Annual Chrysanthemum Show of this Society was held in the Drill Hall. There was a large display of cut blooms. The exhibits included fruits and vegetables, and the entries numbered over seven hundred. In the fifteen classes which constituted the open section, the exhibits were notable for their uniformly good quality, and the show, as a whole, was regarded as the best that has yet been held in the Society's history.

The Silver Challenge Trophy for six vases of disbudded Chrysanthemums, not exceeding twelve blooms in each vase, and not more than two vases of one variety, was awarded to Mr. James Lyle, Donibristle Park, who staged blooms of Rufflesque, Madame H. Foureau, Sorcerer, Blanche de Poitou, Cranfordia and Primrose de Poitou, in fine condition. The exhibit gained thirty points, and the vase of Rufflesque was of outstanding merit. Mr. Neil McLean was only half-a-point behind, with quite a good group which consisted of In Memoriam (two), W. H. Thorpe, Cranfordia (two), and Blanche de Poitou. The remaining prize winners in this class were:—Mr. James Mitchell, Broomhall, twenty-eight points; Mr. A. B. Johnstone, Comely Park, twenty-six points; and Mr. John Ralph, Alloa, twenty-five points.

Mr. Lyle was also successful in the classes for six blooms of Japanese Chrysanthemums, with massive examples of Louisa Pockett, one of which measured twenty inches in circumference, and Mrs. B. Carpenter; one vase of Decorative, disbudded flowers (Cranfordia); two vases of Single, disbudded blooms (Catriona and Florrie King); one vase Single, disbudded (Mona); and one vase of any Decorative sort (Rufflesque). This exhibitor's prize-winning record consisted of six firsts, two seconds, and one third.

Mr. John Loan, Coldstream, excelled in the class for twelve blooms, Japanese; his outstanding varieties being Red Majestic, Boule d'Or, Princess Mary and Majestic; he was also placed first for six blooms, distinct varieties. Mr. John Ralph, Alloa, scored with Dawn of Day, Yellow Majestic and Mrs. A. Davis, in the class for three blooms, Japanese and the remaining first prize awards in this section were won by Mr. James Summers, Halbeath, Mr. Neil McLean, Mr. A. B. Johnstone, Mr. R. Haldane and Mr. John Ralph.

The special prize for the best vase of Chrysanthemums in the show was awarded to Swardeston White, which was staged in the amateur and allotment holders' section by Mr. Robert L. Morris, Townhill, and was included in his quartette of Decorative disbudded varieties, not exceeding nine blooms in each vase, which won the Silver Challenge Trophy. These particular white flowers were perfect in form and size, and were the subjects of praiseworthy comment. Mr. J. Bower, Mr. James Summers, Mr. W. Hynd, Mr. D. Robertson (one vase), and Mr. J. Wilson were other prize-winners.

The open Decorative classes were well filled and made a pretty display. Miss Burke provided the best table decoration, consisting of lightly arranged sprays of Source d'Or. Mr. J. Mitchell excelled in the classes for the best bowl and basket: Mr. D. Wilson led in the amateurs' competition for a basket of Chrysanthemums, and the first prize for the bouquet went to Miss Kemp.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall on Monday, November 11, Mr. Charles H. Curtis presiding.

One new member was elected. The sum of £70 4s. 6d. was passed for payment to the nominees of two deceased members. The sick pay for the month on the private side came to £69 8s. 10d., and in the State section, £74 4s. 2d.; Maternity benefits totalled £6. The Trustees reported that they invested £1,000 in five per cent. Conversion Loan. The sum of £51 9s. 6d. was passed in grants to twelve State-insured members towards their dental and optical treatment, and eighteen other cases were considered.

FINCHLEY CHRYSANTHEMUM.

The splendid exhibition of this Society proved most conclusively that even in its forty-fourth year it well maintains its high position in the Chrysanthemum world. The King Edward Hall at Church End, Finchley, London, N., was well filled with a beautiful series of exhibits, in which all types of the Chrysanthemum were exhibited.

Mr. G. Brett, gardener to James C. Jay, Esq., Ganwick, Barnet, again won the Edith Wildash Loving Cup for four vases of specimen Japanese blooms, distinct, three blooms of one variety in each vase, showing well-finished blooms of Mrs. Algernon Davis, Cissie Brunton, Mrs. B. Carpenter and Mrs. R. C. Pulling. Mr. G. H. Kemp, gardener to C. Malpas, Esq., was second.

In the class open to amateur growers, for two vases of Japanese blooms, distinct, three blooms in each, Mr. B. Carpenter, 58, Elm Park Road, N.3 was a good first showing splendid blooms of Majestic, Mrs. A. Holden, Charles Davis, Victory, W. Rigby and Mrs. B. Carpenter; second, Mr. S. W. Cook, South Tottenham. In the same division, for a vase of five blooms, Mr. B. Carpenter was again a good first, showing splendid examples of Victory, Charles Davis, Mrs. A. Holden and Miss Ada Ellis.

In the open division, for two vases of Single Chrysanthemums, the display was one of the best in the show; the competition was good and the blooms superb. The first prize and the National Chrysanthemum Society's Certificate were easily won by Mrs. H. Lawrence (gr. Mr. A. Pettengell), Kirklands, New Barnet; J. J. Ward, Esq. (gr. Mr. E. Edwards), Rocklands, N.3, was second.

Another good competition was the class for two vases of Decorative Chrysanthemums. The first prize was well won by S. Pulham, Esq. (gr. Mr. C. Wright), Finchley, N., followed by Mrs. H. Lawrence, who had beautiful blooms, but much too crowded. For a single vase of Decorative Chrysanthemums, there was again a splendid series, and the first prize was awarded to F. Bastable, junr., Esq. (gr. Mr. A. Cannon).

In the amateur section, for one vase of six Decorative Chrysanthemums, Mr. F. J. King, High Road, Finchley, N.12, won the first prize with a dainty display. Mr. A. Cramphorn was second. A class of exceptional interest was that for a representation of three sections, the winner of the first prize and the Fisher Silver Challenge Cup being Mr. G. Brett, who staged superb Japanese blooms, large, and beautifully finished Singles, and well-grown Decoratives.

Very interesting was the class for one vase of Anemone or Anemone-centred Singles, the first place being easily secured by Mrs. H. Lawrence, who showed lovely examples of Thora, Bronze Thora and Ceres.

The Pompon classes were well filled. For one vase of Pompons, any variety or varieties, Mr. A. Cramphorn was a good first; while in the class for one vase of small Pompons arranged with autumn foliage, Mr. Brett was first with well-grown examples of Baby Doll and a spray or two of Bright Eyes.

The first prize for a bowl of Chrysanthemums was well won by Mr. A. H. Carter, New Southgate, N., the second prize being awarded to Mrs. H. L. Burke; while for the most gracefully arranged basket of Chrysanthemums, with any autumn foliage, a superb exhibit easily gained the first prize for Mr. Alfred Jarvis, Finchley, N.; second, Mr. E. Edwards.

There were many other classes of interest, mostly well filled, including classes for fruits and vegetables.

ROYAL HORTICULTURAL.

The following awards have been made to the undermentioned flowers and vegetables by the Council of the Royal Horticultural Society, after trial at Wisley.

Dahlias.

Class 1. Single.

Award of Merit.

(7) *Red Riding Hood*, sent by Messrs. Van Tubergen.

Highly Commended.

(209) Mrs. Bealey, sent by Messrs. J. Cheal and Sons, Ltd.

Class 2. Mignon Single.

Award of Merit.

(247) *Mrs. William Clarke*, sent by Mr. H. Woolman.

Class 3. Collerette.

Award of Merit.

(18) *Erika*, sent by Messrs. W. Treseder.

Class 6. Small-flowered Paeony.

Awards of Merit.

(35) *Cora*, sent by Mr. C. Turner, and (40) *Dorret*, sent by Messrs. J. Burrell.

Highly Commended.

(31) Mrs. A. F. Dulton, sent by Mr. A. J. Cobb; (54) Jane, by Messrs. J. Burrell; (58) Yvonne Salmon, by Mr. A. J. Cobb, and (65) Tanglewood, sent by Messrs. W. Treseder.

Class 8. Decorative.

Awards of Merit.

(85) *White King*, sent by Messrs. Ballego; (197) *R. Treat*, by General McRae; (217) *Pride of Crawley*, by Messrs. J. Cheal and Sons, Ltd.; (222) *Premier*, (224) *Mrs. John Crowther*, (228) *Fantasy*, and (231) *R. Findlay*, all sent by Messrs. James Stredwick and Son; and (115) *Miss G. Kenkeel*, sent by Messrs. Majoor.

Highly Commended.

(94) Marcehenschon, sent by Messrs. M. Cablee; (113) Ludwig Thoma, by Messrs. R. van der Schoot; (226) Lady Snagge, by Messrs. J.

Cheal and Sons, and (230) Rev. S. Marriott, sent by Messrs. James Stredwick and Son.

Class 9. Small-flowered Decorative.

Awards of Merit.

(126) *Onah*, and (134) *Baldre*, sent by Messrs. J. Burrell.

Highly Commended.

(127) Stella, sent by Messrs. J. Burrell.

Class 14. Star.

Highly Commended.

(162) Hookwood Star, and (213) Rubin, sent by Messrs. J. Cheal and Sons.

Class 15. Cactus.

Award of Merit.

(178) *Early Yellow*, sent by Messrs. Bruidegom.

Highly Commended.

(172) White Wonder, sent by Messrs. Weyers.

Annual Asters.

Awards of Merit.

(170) *Madame Rivoire*, sent by Messrs. Rivoire; (184) *Giant Comet Mauve Queen*, by Messrs. Dobbie and Co., Ltd.; (305) *Mammoth Cinnabar Carmine*, by Mr. Ernst Benary, and (384, 385 and 386) *Ball's White*, sent by Messrs. Nutting, Messrs. John Bodger and Sons Co., and the W. Atlee Burpee Company.

Highly Commended.

(2) Sun-Ball Flesh, sent by Mr. F. C. Heinemann; (7) Triumph Brilliant Rose, by Messrs. Barr and Sons; (13) Lilliput White, and (15) Lilliput White with Red Centre, by Mr. Ernst Benary; (16, 17 and 18) Lilliput Rose, by Messrs. Daehnfeldt and Jensen, Messrs. Watkins and Simpson, and Mr. Ernst Benary; (21) Lilliput Dark Crimson, by Messrs. Watkins and Simpson; (23 and 24), Lilliput Dark Blue, by Messrs. Watkins and Simpson, and Messrs. Daehnfeldt and Jensen; (28) Dwarf Victoria Rose, by Messrs. Dobbie and Co., Ltd.; (36 and 37) Mignon White, sent by Mr. Ernst Benary and Messrs. R. Veitch; (54) Queen of the Market White, by Messrs. John Bodger and Sons Co. (62, 63 and 64), Queen of the Market Bright Rose, by Messrs. John Bodger and Sons Co.; Messrs. Watkins and Simpson, and the Waller-Franklin Seed Company; (74 and 75) Queen of the Market Dark Blue, by Messrs. Daehnfeldt and Jensen, and Messrs. John Bodger, and Sons Co., and (76 and 77) Queen of the Market Purple, by the Waller-Franklin Seed Company, and Messrs. J. Bodger and Sons Co. (alike); (91) Royal Rose, by Messrs. W. Atlee Burpee Company, and (92) Peerless Branching Deep Rose, by Messrs. Clucas (alike); (106) Early Beauty Rose, by Messrs. John Bodger and Sons Co.; (125) King Pink and (129) King Crimson, by the W. Atlee Burpee Company; (133) King Lavender, by the Waller Franklin Seed Company; (140) Giant Comet The Bride, (158) Giant Comet Peach Blossom and (168) Giant Comet Rose, by Messrs. Dobbie and Co., Ltd.; (173) Giant Comet Cinnabar Red, by Mr. Alfred Dawkins; (191) Californian Giant Light Blue, by the W. Atlee Burpee Company; (192) Giant Comet Light Blue, by Messrs. Dobbie and Co., Ltd.; (220) Giants of California Deep Rose, by Messrs. Watkins and Simpson; (229) California Giants Light Blue, by Messrs. Dobbie and Co., Ltd.; (232 and 233) Californian Giants Light Purple, by Messrs. Dobbie and Co., Ltd., and Messrs. John Bodger and Sons Co.; (241 and 242) Ostrich Plume Show Queen, by Messrs. W. H. Simpson and Messrs. Watkins and Simpson, (243) Ostrich Feather White, by Messrs. Daehnfeldt and Jensen, (244) Mammoth Ostrich Plume White, by Messrs. Clucas, and (245 and 246) Ostrich Plume White, by Messrs. Clucas and Messrs. Middlehursts (all alike); (257) Ostrich Plume Rose-pink, by Messrs. W. H. Simpson; (271) Ostrich Plume Terra-cotta, by Messrs. James Carter and Co.; (280) Hercules Rosy Lilac, by Mr. F. C. Heinemann; (288) Ostrich Feather Light Blue, by Messrs. Dobbie and Co., Ltd.; (301) Mammoth White, by Mr. Ernst Benary; (310) Giant Victoria White, by Messrs. W. H. Simpson, and (312) Victoria White), by Mr. Ernst Benary (alike); (325) All Saints Light Blue, by Messrs. Morris; (334) Dwarf Chrysanthemum White, by Mr. Ernst Benary; (348) Astermum Lavender, by Messrs. John Bodger and Sons Co.; (356) Paeony-flowered Perfection Fiery Scarlet, by Mr. Ernst Benary; (359) Paeony-flowered Crimson, by Messrs. Dobbie and Co., Ltd.; (362) Paeony-flowered Perfection Light Blue, by Mr. Ernst Benary; (376) Late Beauty Lavender, by Messrs. John Bodger and Sons Co.; (377) Late Beauty Azure Fairy, by Messrs. John Bodger and Sons Co., (378) Late Beauty Azure Fairy, by Messrs. Dobbie and Co., Ltd., (427) Late Branching Azure Fairy, by Messrs. Watkins and Simpson, (428) American Branching Lavender, by the W. Atlee Burpee Company, (429) Late Branching Lavender, by the Waller-Franklin Seed Company, and (430) American Branching Azure Blue, by the W. Atlee Burpee, Company (all alike); (396 and 397) Peerless Pink, by the W. Atlee Burpee Company, and the Waller-Franklin Seed Company; (398) American Branching Mary Semple, by the W. Atlee Burpee Company; and (403) Tall Branching Shell Pink, by Messrs. Dobbie and Co., Ltd. (alike); (399) Royal Shell Pink, by Messrs. Nutting; (408) Tall Branching Rose, by Messrs. Dobbie and Co., Ltd., and (409) Late Branching Deep Rose, by the Waller-Franklin Seed Company (alike); (419) Crimson Beauty, by Messrs. Clucas; (424) Tall Branching Lavender Pink, by Messrs. Dobbie and Co., Ltd.; (426) Lavender Gem, by Messrs. John Bodger and Sons, Co. (432) American Branching Dark Blue, by the W. Atlee Burpee Company, and (433) Tall Branching Dark Blue, by Messrs. Dobbie and Co., Ltd. (alike); (440) Mikado White, by Messrs. R. H. Bath, Ltd.; (444) Pride of the West, by Messrs. James Kelway; (502) Sunshine Light Blue, by Messrs. R. Blossfeld; (520) Single Pink, by Messrs. Barr and Sons; (530) Single Violet, by Messrs. Barr and Sons, and (531) Sinensis Violet, by Messrs. Hurst (alike); (534) Peerless Yellow, and (535) Salmon Queen, by Messrs. John Bodger and Sons Co.

Antirrhinum.

Award of Merit.

C. H. Herbert, sent by Messrs. W. H. Simpson.

Scarlet Runner Bean.

Award of Merit.

Tip Top, sent by Mr. A. Mitchelson.

DERBYSHIRE HORTICULTURAL.

Mr. A. Roebuck, Adviser in Entomology to the Midland Agricultural College, gave a popular lecture to the members of the Derbyshire Horticultural Association, in the Guild Hall, Derby, on the subject of "Insect Life in the Garden," illustrated by seventy lantern slides, many of them being in colour.

The lecturer showed how the observant gardener could get much entertainment by watching many harmless insects. He began with the primative Compodea, the springtails, the habits of the earwigs, and the harmless psocid. The puzzling capsids were mentioned and various species of aphides. These last are so abundant and prolific that they provide a food supply for many different insects, such as the pretty lacewing hover flies and ladybirds. The problems of parasitism and hypoparasitism were dealt with in connection with the Cabbage white butterfly. The great variety of Lepidoptera was illustrated by the unusual but ever popular hawk moths, the clearwings, the winter moth with its wingless females, the lackey moth, with its caterpillar tents, the twig caterpillars and the pistol-case bearers. Further, the natural and artificial production of varieties was illustrated by the tiger and the magpie moths. Many beetles and weevils were shown; the ever present click-beetles, Apple-blossom and Raspberry weevils, Turnip fleas and burying and rove beetles. In addition, the work of the Clytus larvae in shortening the life of Pea sticks and Bean poles was mentioned. After dealing with some of the sawflies and many of our principal fly pests, a survey of a few species of Hymenoptera was made. The usefulness of the wasps in the early part of the season, the ways of the humble bees, the interesting ways of the leaf-cutter; and finally, the beautiful red lawn bees, so acceptable in the early spring days, were all referred to.

Mr. L. Smith presided, and thanks were tendered to Mr. A. Roebuck by Mr. Wardman and Mr. Seymour.

ROYAL CALEDONIAN HORTICULTURAL.

The exhibits staged at the monthly meeting of the Royal Caledonian Horticultural Society, held at Edinburgh on November 6, were exceptionally numerous and varied in character.

In the competitive section for two vases of Chrysanthemums, Mr. R. B. White, Murrayfield, secured the premier position with five examples of Red Majestic and Mrs. Harold Wells, while Mr. F. Glass, Murrayfield, was runner-up. The vase of H. W. Thorpe, grown by Mr. W. G. Stott, Murrayfield, was awarded first prize in the class for Decorative Chrysanthemums; Mr. J. C. Dempster gained second place.

Competition was keen in the class for six Potatos, and the awards were as follows:—First, Mr. W. G. Pursell, Portabello (Arran Banner); second, Mr. R. B. White (Red King).

The outstanding exhibit in the non-competitive section was a beautiful group of Begonias, which was notable for the colour of the flowers and the floriferous character of the plants. It was staged by the City Parks Department, and included well-grown specimens of the varieties Optima, Exquisite, Elatior, Orange King, Dazzler, Pink Perfection, Scarlet Beauty and Conquest. The Committee recognised the merit of the exhibit by awarding it a Gold Medal. A vase of large, clean, cut blooms, of Lilium auratum var. platyphyllum, grown out-of-doors, was exhibited by Mr. David Armstrong, Drum Gardens, Gilmerton, and Mr. W. Maitland, Murrayfield, showed a pink sport from the Chrysanthemum Parson's White. Other Chrysanthemum exhibits consisted of White Ball, by Mr. William Swan, West House; Mrs. G. Monro and Mrs. H. Wells, by Mr. James Weir, 4, Church Hill Place, and In Memoriam and Blanche de Poitou, by Mr. R. B. White. Miss Burton, New Saughtonhall, Polton, showed a dish of Arran Banner Potatos.

Mr. Jeffrey presided over a large company which was entertained by the Rev. D. C. Stewart, of Currie, who lectured on "Scottish Humour."

CARDIFF GARDENERS'.

At the meeting held at the Queen's Hotel, Cardiff, early in November, Mr. W. H. Pryce presided. The meeting was well attended by many gardeners, who were all anxious to hear the lecture on "Strawberry Diseases," given by Mr. L. N. Staniland, of the Horticultural Research Station, Long Ashton, Bristol. This proved a very interesting lecture to all, and much useful knowledge was gleaned from the lecturer's remarks on various Strawberry troubles, which included red leaf, cauliflower and patch diseases, and also the Strawberry aphis. All these were described and illustrated, and from the observations made at Long Ashton, it was stated that there is every probability of stamping out these various diseases of the Strawberry that have been so prominent and destructive in private and market gardens during the past ten or twelve years. The lecturer emphasised the importance of obtaining clean stock to commence with, and the care in selecting runners, which should never be taken from plants carrying fruits.

A long and interesting discussion took place and many questions were asked by members and ably answered by Mr. Staniland, who, at the close, received a hearty vote of thanks.

Prizes were offered for the best blooms of Japanese Chrysanthemums, and the first prize was awarded to Mr. W. W. Crouch, and the second to Mr. Lidgett Gibbs. For the best nine blooms of Single varieties, Mr. Jones was first, Mr. H. Jenkins second, and Mr. W. W. Crouch third. Points were also awarded to Mr. Baker for Grapes, Mr. Kirby for Apples, and Mr. Pryce for Chrysanthemums

KINGSTON AND SURBITON CHRYSANTHEMUM.

The twenty-second Annual Show of this Society was held on November 6 at Surbiton Assembly Rooms, and proved to be a great success. There were far more entries than usual, and the quality of the flowers was much better than anticipated after the difficult season. The Challenge Cup given by the tradesmen of Kingston and Surbiton was won by Lady Juliet Duff (gr. Mr. H. Weaver), Coombe Court, Kingston, with eighteen Japanese blooms; these were very fine examples and included the grand bloom of Mrs. B. Carpenter which won the National Society's Certificate and a special prize for the best bloom in the show. Mr. Weaver also won the Davis Cup for three Chrysanthemum plants, and many other prizes.

The Hanks Challenge Cup for a group of Chrysanthemum plants in pots was awarded to Mrs. Costain (gr. Mr. J. Pike), Woodlands Park, Leatherhead. This group was well staged and contained some very fine flowers. Mrs. Pike also won the Bond Cup for a group of miscellaneous plants, which was well put up. The Hodgson Challenge Cup was won by H. Becker, Esq. (gr. Mr. Manwaring), Surbiton, with twelve Japanese blooms in distinct varieties; this exhibitor also won the Cup last year. The Wigley Cup, for amateurs, given by the President of the Society, was awarded to Mr. C. Hawkins, of Kingston, who staged a dozen Japanese blooms which closely rivalled those of the professional growers, and included the fine bloom of Mrs. A. Holden which received the National Society's Certificate and a Special Prize as the best bloom in the amateurs' classes.

The Silver Cup offered by Sir G. Penny, M.P., to the lady gaining the most points in the show, was awarded to Mrs. Barrett, of Thames Ditton, for three bottles of preserved fruits in exceptionally good condition. Fruits and vegetables were well-shown both by cottagers and professional gardeners. The first prize for Grapes was won by G. C. Hodgson, Esq. (gr. Mr. Belfield), Surbiton, who staged two fine bunches of Muscat of Alexandria.

AYR CHRYSANTHEMUM.

The twenty-third annual exhibition of this Society was held on November 20, and in respect to entries the number created a new high record. In the cut flower section the increase exceeded fifty, and to provide the necessary accommodation the decorated dinner table classes had to be abandoned. Owing to the representative support given by growers in different parts of the country, the show has assumed something of a national character, and the quality of the exhibits generally reflected a very high standard of production, particularly in the Japanese and specimen plant classes.

There were twenty-nine classes in the gardeners' section, and the championship in the form of the Land of Burns Cup, for four vases of Japanese Chrysanthemums, three blooms in each, was won for the second year in succession by Mr. Hugh McSkimming, gardener to George McLellan, Esq., Auchenault, Helensburgh, with well finished blooms of Dawn of Day, Princess Mary, Mrs. B. Carpenter, Louisa Pockett, R. C. Pulling, Lady Talbot, T. W. Pockett and Queen Mary. The bloom of Lady Talbot was awarded the special prize for the best flower in the show, and Mr. McSkimming was also successful in the classes for three Japanese blooms, white; three yellow, and three blooms of bronze or crimson Japanese Chrysanthemums. The outstanding bloom in the crimson class was Birmingham, a grand variety included in the first prize trio. Mr. McSkimming also provided the best twelve Japanese blooms shown on boards.

On his first appearance as a competitor, Mr. James Hutchinson, Kilmarnock, had a unique experience. He was awarded the Silver Cup in the confined class for twelve Japanese blooms shown on boards, and in the amateurs' section he won the Silver Cup for two vases of Japanese varieties, and a Rose Bowl for six Japanese blooms shown on boards. He also scored in the competition for six new varieties introduced since 1926, with well-grown examples of Aquitania, Mrs. Holden, Mrs. Keith Luxford, Yellow Majestic, Red Majestic and T. W. Pockett. Mr. Watt was second.

The Rose Bowl for three vases of Single Chrysanthemums went to Mr. George McCartney, Orangefield Gardens, Monkton, who also excelled in the classes for pot plants.

The best pot plant in the show, however, was grown by an amateur, Mr. Norman Jamie, who staged a handsome specimen of H. W. Thorpe, carrying eighty-five blooms. His prize-winning record consisted of five first prizes for pot plants, and three for vases. Romance, an Incurved yellow variety, was outstanding in his collection.

Other names prominent in the prize list were Mr. R. J. Clark, Mr. R. Livingstone, Mr. W. Murdock, Mr. G. Kerr and Miss Carnegie.

The non-competitive exhibits consisted of a representative collection of the newer Japanese and Single Chrysanthemums. They included a good collection by Messrs. William Marshall and Co.; a smaller group of high-class blooms from Messrs. Carnegie and Sons; Begonias, by Messrs. Austen and McAslan; alpines, by Messrs. McGill and Smith; and a miscellaneous exhibit of fruits, flowers and vegetables, by Messrs. Learmouth, Hunter and King.

Obituary.

Joseph Evans.—Few gardeners will be more sadly missed than Mr. Joseph Evans, who had spent the past twenty-five years of his life as gardener at Snaprails, Sandhurst, in the employ of W. Napier Church, Esq., by whom he was held in high esteem. His painfully sudden death on Friday evening, the 15th instant, at the comparatively early age of fifty-nine years, came as a great blow to all his friends. His usual routine in the garden was carried out even on the day of his death. Much sympathy is felt for his widow, son and three daughters, and many of his intimate friends in Berkshire and west Surrey were, owing to the early interment, unable to pay their respects by attending his funeral, which took place on the following Monday. Horticultural societies throughout the district will miss the excellent exhibits of plants, flowers and vegetables with which he won many high awards. His activities were by no means confined to gardening, as his position as Chairman of the Sandhurst Working Men's Club will testify, together with his association with the Sandhurst Silver Prize Band, whose reputation is due largely to his efforts. He spent his life in the service of others, and his cheerfulness was an inspiration to all.

H. J. Lemkes.—We regret to learn of the sudden death, at the age of sixty-seven, of the Dutch nurseryman, Mr. H. J. Lemkes, who passed away at Alphen a/d Rijn on November 11. Mr. Lemkes was born in 1862, at Alphen, and early showed considerable taste for horticulture. After several years spent in acquiring varied knowledge, he established while still quite young, a small nursery of his own in his home town, and this gradually developed in size and scope until it became well-known as a source of supply for excellently grown Ferns, Cyclamen, Asparagus foliage, Arums, and latterly, Palms and Azaleas also. The deceased was of a very retiring disposition, but was always ready to do good in an unostentatious way. After his three sons were old enough to take over the main cares of the business, the elder Lemkes retired from active work, but still interested himself in its affairs, while at the same time taking a part in local philanthropic and religious activities. He was very much respected and beloved at Alphen, and will be greatly missed by a large circle of friends.

ANSWERS TO CORRESPONDENTS.

Apple Mrs. Phillimore.—*D. C.* This Apple was raised by Mr. Charles Ross, by crossing the varieties Lord Burghley and Gladstone, and introduced to commerce in 1900. We have no record of it as a market variety, but it is certainly worthy of trial. [Thanks for 2s. 6d. for R.G.O.F. Box.]

Gentiana verna, Oxalis lobata, etc.—*C. E. T.* (1) Gentiana verna grows quite readily from seeds if these are sown in spring on a well-drained compost of loam, leaf-mould, and sand, in a pot placed in a cold frame, care being taken not to sow too deeply. After germination keep the seedlings fairly moist. (2) Oxalis lobata does best when planted along the base of a rock in a sunny position in good, well-drained, gritty soil. O. enneaphylla grows well and flowers profusely in a semi-shaded position on a ledge, planted in well-drained leaf-mould, loam, chips, etc. O. adenophylla flowers well in the rock garden at Kew in rather sunnier and more sheltered positions than the preceding, in good gritty soil. (3) Take cuttings of the Lupin, if possible, after beheading the flowering stem, or divide the crowns in the spring of the second year, and so on. (4) Lithospermum prostratum is best raised from cuttings of half-ripened wood inserted in early autumn and placed in sand in a cold frame. (5) The Erodiums mentioned may be propagated by division in early summer or by cuttings inserted in sand later, or from seeds sown in early spring. (6) Divide the Gentians at the end of March or beginning of April. Gentiana septemfida may be propagated by cuttings taken in early summer and inserted in sand in a cold frame, or raised from seeds sown in spring. (7) Propagate the Gypsophila by taking cuttings of the young wood, with a heel, and inserting them in sand in early summer. A little heat in this case is helpful. Cuttings may also be taken of half-ripened wood, care being taken to ensure the covering of the lower node with sand or compost; if this is difficult owing to the cuttings being too long, sever them at an internode, leaving two nodes on the stem, one above ground and one below, when they are inserted in the propagating case.

Gladiolus Corms Diseased.—*G. J. T.* The Gladiolus corms have been attacked by some soil pest, *e.g.*, slugs or surface caterpillars, the larvae of the Turnip or heart and dart moths. Two of the corms show beneath the outer scales the lesions usually associated with Fusarium disease. Too little is known at present on the control of this and similar diseases of Gladiolus, but sufficient is known to warrant the destruction of all corms showing signs of having been attacked by fungi or bacteria. Diseased corms should not be kept in storage as they will decay and become a source of infection. The treatment of infected land with a two per cent. formalin solution may have a sterilising effect, but rotation should be practised rather than run the risk of planting corms in infected land next year.

Names of Plants.—*G.* Pieris floribunda.—*A. S.* 1, Cotoneaster Simonsii; 2, Cydonia japonica.

Rating Relief.—*J. W. W.* As you have been given an appointment to appear before the Assessment Committee you will have an opportunity of stating your case to this Committee. You should lay stress on the fact that your holding comprises a dwelling-house and that you are primarily engaged in carrying on agricultural operations on the land connected with the house, if such be the case. If the Assessment Committee holds that you are not entitled to have the house assessed at a lower valuation than if it was assessed as a dwelling-house for general use, you should obtain legal advice as to your prospects of success in an appeal to the Quarter Sessions.

Communications Received.—A. W.—F. K. W.—F. S.—S. A.—J. C.—J. H. F.—W. P W.—R. C. B. G.—D. M.—A. C. B.—A. T. J.

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Average Mean Temperature for the ensuing week deduced from observations during the past fifty years at Greenwich, 41·2°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, December 4, 10 a.m. (Greenwich time). Bar. 29·6. Temp. 54°. Weather, Overcast.

Vegetative Propagation. There is no need to emphasise to gardeners the importance of acquiring the utmost skill in the art of propagation; for although some plants lend themselves readily to multiplication by vegetative means, others are not at all easily reproduced by vegetative propagation. Thanks, however, to the fertility of resource of enterprising gardeners, all sorts of ways and means have been discovered which often prove successful in inducing plants unamenable to ordinary methods, to increase and multiply vegetatively. Thus, as everybody knows, there are not a few plants which, although they may not readily strike root from stem cuttings, do so when root cuttings are taken. Of many garden plants which may be propagated in this way Seakale and Anchusa italica are common examples. The property which some plants possess of reproducing themselves from root cuttings has led in certain cases, as, for example, Bouvardia, Pelargonium, Phlox and others, to the discovery that the plant raised from a root cutting may differ in certain respects, as, for example, colour of flowers, from the plant from which the cutting was taken; thus providing an exception to the general rule that vegetative propagation ensures uniformity of type. The curious in these matters will find much to interest and puzzle them in the account of the behaviour of varieties of Pelargonium zonale given on p. 405 of a recent issue of this journal. Nothing is more amazing to the philosophically minded gardener than to discover in beings which are such creatures of habit and convention as are plants, this sudden kicking over the traces and breaking away from tradition which characterises these well-named "sporting" plants. The practical gardener, having been so successful in discovering new ways of inducing plants to propagate themselves, has in turn been followed, and with equal success, by the scientific horticulturist. The exploration of means of inducing vegetative propagation was a subject which interested greatly the late Professor Sir Isaac Bayley Balfour; and no wonder, for no one has combined in himself more harmoniously the scientific and practical, as did he. Thanks, no doubt, to his inspiration, Edinburgh has always been to the fore in this line of investigation. The most recent evidence of this preoccupation with problems of plant propagation are two brief papers in the *Transactions of the Botanical Society of Edinburgh*.[*] In the former of these two contributions an illustrated account is given of the rooting of leaf-cuttings of such unlikely subjects as Ginkgo biloba and Podocarpus macrophylla, and of a verity, were it not for the unimpeachable testimony of the authors, we should have thought that the leathery-leaved Maidenhair Tree would not have proved a successful subject for the operation of taking leaf-cuttings. But with plants, as with life in general, "you never can tell." The list of plants which may be raised from leaf-cuttings is already a long one. Apart from the well-known case of Begonia, leaf-cuttings may be made from Acanthus, Acalypha, Alloplectus, Alsomitra, Brownea, Chirita, Coleus, Dioscorea, Eranthemum, Ficus, Gasteria, Gesneria, Jacobinia, Kopsia, Medinella, Panax, Peperomia, Rosa, Ruellia, Sanchezia, Sansevieria, Vitis and Zamioculcas. Then there are, of course, the plants which themselves apply this method of propagation, species of Begonia, Bryophyllum, Malaxis and Kalanchoe, for example. All of these viviparous plants are interesting, although, perhaps the most interesting is Kalanchoe verticillata, whose leaves, while they are still in an extremely early stage of development, begin to make preparation for the multiplication of the species by forming buds on their horned tips. Some day, these interesting experimental studies will no doubt be carried much further. Some skilful manipulator will succeed in dissecting out the individual cells which give rise to a new bud and, growing them in artificial media, will raise a new and complete plant from such a single cell. In the meantime, those who have leisure might well interest themselves in the useful art of finding out how species which ordinarily propagate with difficulty may be made to reproduce themselves readily; for, as the late Reverend H. J. Bidder, of fragrant memory, used to say to the beginners, when lavishing his garden treasures upon them: "To make a garden you must propagate and propagate and propagate your plants."

The "Gardeners' Chronicle" Almanac for 1930.—The preparation of our Almanac for 1930 is now proceeding, and as we are anxious to include so many dates of horticultural exhibitions and meetings as possible, the secretaries of horticultural, botanical and kindred societies are invited to send us the dates of their fixtures for the coming year, to reach us on or before December 31, 1929.

Chrysanthemums in the Temperate House at Kew.—The spacious dimensions of the Temperate House at Kew and the abundant green foliage of its occupants, form an ideal setting for Chrysanthemum plants, numbers of which are grown as specimens, in most cases three plants in a twelve-inch pot, partially disbudded, and carry from forty to sixty flowers on each specimen. These are arranged on either side of the path through the centre of the house, mostly in groups of four, five or more examples of one variety, but each specimen stands out distinct from its neighbour. Most of the varieties represented belong to the Decorative and Single-flowered sections. Those of outstanding merit include Josephine Bernier, pink, lighter centre; Brilliant, crimson, gold reverse; September Gold, rich yellow; Portia, single, terra-cotta; Godfrey's King, bronze; and the following white varieties: Niveus, Madame R. Oberthur, Mrs. Clibran, Robert Thorpe, single; and Mrs. O'Neil, this last being a most attractive free-flowering Single variety.

Mr. William Cuthbertson's Jubilee.—At a social gathering of the employees and friends of Messrs. Dobbie and Co., Ltd., held at Edinburgh on Thursday, November 28, Professor Daniel Lamont, in the course of an address on the progress of the firm since the headquarters were removed from Rothesay to Edinburgh, mentioned that this was the jubilee year of Mr. Cuthbertson's association with the firm of Dobbie and Co. It was a wonderful achievement to spend fifty years of one's life with one firm, but it was more wonderful when they considered the character of the work, the energy, the initiative and skill applied during half-a-century. He sometimes wondered at Mr. Cuthbertson's great versatility, particularly in the realms of science and art. He recalled a meeting held at Rothesay in 1902 in connection with the firm at which two subjects were to be banned. One was politics and the other was the champion Leek. At the right hand of the Chairman on that occasion sat Mr. James Dobbie, the founder of the business, who had a speech written, but did not deliver it. It was read by Dr. Hewison, and what interested him most was that it combined the two permanent traditions of the firm—energy well directed, and good feelings towards the employees. This old man approved of the new policy of the firm, gave it his blessing, and predicted its success. How that prophecy had been fulfilled was known to them all.

Surplus Potato Crops in Scotland.—How to dispose of the heavy stocks of Potatos that have accumulated this season in Scotland is a problem exercising the minds of growers in different parts of the country. The Executive of the National Farmers' Union has suggested that surplus stocks should be exported to South American and Mediterranean ports, but that proposal was turned down at a meeting of the Perthshire branch on November 29, because of the sacrifice imposed on the growers. Mr. John A. Buchan blamed the British Ministry of Agriculture for talking so much about Wart Disease, which was responsible for the attitude of the United States in placing an embargo on British-grown produce. There was a strong feeling in favour of placing the same restrictions on foreign Potatos as foreign countries had placed on British Potatos. Mr. J. Lennox made the novel suggestion that as Wart Disease emanated mainly from gardens, farmers should combine to prohibit the growing of Potatos in gardens, and, if necessary, give Potatos free to gardeners in compensation. Mr. Hugh McLean put his finger on the weak spot when he stated that farmers had themselves to blame to a great extent because of the stuff they were putting on the market. In Glasgow and the west particularly he had had served up to him Potatos which were hardly fit to eat.

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[*] "Vegetative Propagation: Leaf Cuttings in Gymnosperms," by R. J. D. Graham and L. B. Stewart; and "Vegetative Propagation: Kalanchoe verticillata," by C. M. Baron, R. J. D. Graham and L. B. Stewart.

Liege International Horticultural Exhibition, 1930.—Besides the World's Fair and International Horticultural Exhibition, to be held at Antwerp during the spring and summer of 1930, there is to be a large exhibition at Liége during the same period, in the beautiful fifteen-hectare park on the banks of the Meuse. It is intended that the agricultural and horticultural section of the exhibition shall comprise a model village, which will serve to demonstrate the progress achieved in the various phases and processes concerned. A large and up-to-date farm will illustrate the use of electricity in rural districts, a second farm will show the latest agricultural machinery, a cottage with a garden and orchard will show what can be done with a small allotment, and other exhibits will be a modern poultry-farm, a bee-farm, a village restaurant, and a display by the Government Department of Waters and Forests.

Dutch Auction at Antibes.—A machine for the holding of silent auctions in the flower trade has been established at Antibes, this being the first to be used in France. The machine has been imported from Holland, and is worked by electricity, as is the dial used in the well-known sales at Aalsmeer. The cost is being defrayed jointly by the flower-growers and exporters of Antibes, Cagnes, St.-Laurent-du-Var, Beaulieu and other centres in the south of France.

Afforestation and the Rabbit Menace.—It was noted in these columns at the time the Scottish Forestry Commissioners took over the estate of Burghead, Morayshire, a large part of which is covered with blown sand, that there was "one fly in the ointment—the rabbit menace." Some idea of the gravity of the menace may be imagined when it is stated that those controlling the warrens expect to send over 5,000 rabbit pelts to the fur merchants during the next four months, and to that there must be added 4,000 already killed this season. The toll these creatures take of newly planted areas is a heartbreak to the forester. It is hoped, however, the strenuous efforts now made to combat the pest will ultimately prevail. After an area has been prepared for planting, it is carefully wired off and rendered rabbit-proof. But should a gate be left open, the entry into the forbidden and cleared areas by two or three bunnies very soon tells a tale. The astonishing prolificacy of the creatures very soon founds a colony. But the work of afforestation proceeds apace. Already over eighty acres have been planted with 165,000 Corsican and Scots Pines, and are all doing remarkably well. During the planting season, which started the other day, those in charge hope, given anything like favourable weather, to afforest another 15,000 acres. The fine experience gained in afforesting the Culbin Sands, a herculean task directed by Mr. Annand, the Forestry Officer in the north-eastern districts of Scotland, is playing an invaluable part in the work at Burghead. The objective in both the areas is the same—to prevent the drifting sand from overwhelming many acres of the finest agricultural land in Morayshire.

Export of Belgian Plants to Spain.—M. Charles Pynaert, the well-known Belgian horticulturist, has just visited Spain with the object of obtaining some modification of the regulations which have lately been made in that country for the importation of plants. He has been able to secure that foliage plants (Kentias, Palms in general, Dracaenas, Araucarias and Laurels) shall be admitted to Spain in complete waggon-loads, provided the permission of the Spanish Government has been obtained, and that the soil attached to the roots or in the pots be completely removed and replaced by Spanish soil. So far as Azaleas are concerned, negotiations are still proceeding, but it is hoped to arrive at a satisfactory decision.

"Hardy and Half-hardy Plants."—In the issue of *Hardy and Half-hardy Plants* for November, Mr. A. W. Darnell gives excellent illustrations and brief descriptions and cultural notes of Codonopsis ovata (coloured); Tricuspidaria dependens (syn. Crinodendron Hookerianum), a striking crimson-flowered, half-hardy shrub from Chile; Sternbergia Fischeriana, Aristea corymbosa (syn. Witsenia corymbosa), the Tree Iris; Primula viscosa, Ambrosinia Bassii, the Pixy Arum; Veronica macrantha, a large, pure white-flowered species; Chiliotrichum diffusum, an attractive shrubby Composite from the Falkland Islands; Bomarea acutifolia, Pogonia ophioglossoides, the dainty Adder's-tongue Orchid of North America; Convolvulus althaeoides, Hydrolea spinosa, Colchicum umbrosum, Primula minima, Menziesia ciliicalyx, Lilium sutchuenense, Oxytropis bella, not yet in cultivation, but stated as likely to prove welcome on the rock garden; Shortia galacifolia, Aristolochia Clematis, Rhododendron lapponicum, and Trichomanes reniforme, the New Zealand Kidney Fern.

Mr. H. B. Witty.—On November 11 the official career of Mr. H. B. Witty as Superintendent of Parks, Cemeteries and Recreation Grounds to the Hull Corporation, came to an honourable close, as he then retired on superannuation, after having served the Corporation for forty-one years. Mr. H. B. Witty was born at Cottingham in the year 1864, where his father was a nurseryman and seedsman, and his early years were spent in association with this business. He received a thorough training in every branch of the nursery and seed business, and this excellent grounding served him in later years. As a young man he went to Kew, leaving the Royal Botanic Gardens at the end of two years and three months. The call of his native district was so insistent that he returned to Hull and commenced business on his own account. This he conducted until 1888, when he was appointed Superintendent at Western Cemetery. The appointment took effect before the cemetery was officially opened, and it fell to Mr. Witty to complete the lay-out of the site, which he supervised until 1901. In that year he was appointed Superintendent of Parks and Cemeteries in succession to the late Mr. E. A. Peake. During the past twenty-eight years, the Parks and Cemeteries Department at Hull has grown amazingly, and it is now among the most modern in the country. This transformation is largely due to the untiring efforts of Mr. Witty. In no city in the kingdom of comparable size are there more street trees, and no fewer than twenty men are continuously employed in keeping these in order. There are four large parks in which the best features of horticulture are well represented, together with every facility for music and games. Several disused burial grounds exist in the city, and these have been brightened with flower-beds and converted into havens of rest for the general public. More than three thousand allotments are included within the purview of the department. All these sections have received the personal attention of Mr. Witty, who has assisted their development in every possible way. In the last few months before his retirement, he took an active part in the formation of a new golf course and park at Willoughby, which it is hoped will be ready for use next Easter. There are three large cemeteries in the city, and a fourth is in course of formation. Mr. Witty has for twenty-five years displayed a keen interest in the welfare of the Hull and East Riding Chrysanthemum Society, having served on the Committee for that period, and the present prosperity of the Society is in no small measure due to the practical interest which Mr. Witty has shown in it. The Hull Parks and Burial Committee, at the last meeting which Mr. Witty attended prior to his retirement, decided unanimously to present him with an illuminated address, inscribed on vellum, as a recognition of the valuable services which he has rendered to Hull. We wish Mr. Witty much happiness in his well-earned retirement. He is succeeded by Mr. G. H. Copley, N.D.H., who goes to Hull from a similar position at Dewsbury.

MR. H. B. WITTY.

Legacies to Gardeners.—Miss Sophia Mary Arkwright, of Nutwood, Grange-over-Sands, Lancashire, who died on August 24, left £100 to Mr. Joseph Steem, gardener, if still in her employ.—Colonel Sir John Arthur Anstice, K.C.B., of The Old Grange, Dymock, Gloucester, who died on August 1, 1929, left £50 to his gardener, Mr. Joseph Trotter.

National Park and Sanctuary for Flowers and Animals for Scotland.—The project of a national park and sanctuary for the preservation of what remains of the flora and fauna of Scotland is slowly but surely making progress in the public mind of Scotland, and it is beginning to be realised that if nothing is done in this direction soon it is quite conceivable that in a few years hence there may be little left of the natural beauties of the countryside. The erection of factories, opening of new mines, quarries, and the draining of lochs and the utilisation of water falls, are all having an adverse effect on "Bonnie Scotland." It is felt, too, that should the project adumbrated be properly gone into, the area must be large and representative in character not only of typical Scottish scenery, but also of animal and plant life. Canada and America have had national parks and sanctuaries for years, but the scale suggested for Scotland is humble in the extreme compared with these gigantic areas. Two sites are meantime before the projectors—the Island of Arran in the Firth of Clyde and the Cairngorm mountain range. What militates against Arran is its position and the fact that during the summer season it is overrun by Glaswegians and other holiday-makers. But the Cairngorms, perhaps the finest mountain range in the British Isles, would make an ideal national park and sanctuary. As a start it is suggested that Glenmore, a large estate in the Cairngorms, should be acquired for the nation. It is an area of great beauty and also of great interest, extending as it does to the summit of Cairngorm, over 4,000 feet in height. The principal summits, each over 4,000 feet, are Ben Macdhui, Braeriach, Cairntoul and Cairngorm, and not far off the 4,000 feet level are Ben Avon and Ben A'Bhuird. Glenmore forms only a small part of the region which is known as the Cairngorms, but within it are magnificent corries, glens and lochs, noble forests of ancient Pines adding greatly to the beauty and majesty of the area. The Scottish Forestry Commissioners, who own 12,500 acres of the Cairngorms, including the mountain itself which gives the range its name, and Loch Morlich, have expressed their willingness, on conditions, to transfer their rights to the Scottish Forest Reserve Committee. Of the acreage given 8,500 acres have yet to be planted. There is no intention of making the Cairngorms into a glorified tea garden, their isolation forming really one of the advantages of the scheme. It would be desirable, however, that reasonable access be given to the outskirts of the region, leaving the true lovers of nature who walk miles and at times risk their lives, to enjoy the solitude and majesty of the everlasting hills. Hence it is not suggested that the majesty of the region should be spoiled by the indiscriminate construction of roads and paths and hotels.

As it is, the suggestion to make the Cairngorms into a National Park is adversely criticised by enthusiastic mountaineers. They ask—How many of, say, the mining population of Scotland would care to avail themselves of the chance of climbing any of the high Cairngorms? Are the quiet recesses of the Grampians to be opened up by means of roads, public houses and other plebeian inducements on the off-chance of getting charabancs and their usually noisy crowds scattered over these sacred places? The result of that would be that those who really love the mountains would be driven away from them. The charm of those places would be lost on account of the litter and the din that would almost inevitably follow the trail of such excursionists. It has to be remembered that the general public must be educated to respect these beautiful spots. Indeed, lack of the training of the multitude to respect such places has been the cause of the exclusion of the few who would value highly the privilege of having free access to them. But as Lord Bledisloe, who is an enthusiast for the preservation of England's beauty spots, puts it—"We have grown so used to regarding the 'tripper' as a vandal that we cannot imagine conditions under which such people, instead of wanting to destroy or maim wild life, will as a matter of honour and national duty feel themselves bound to protect it. Yet this has been the experience of the Transatlantic park authorities." Encouraging, certainly. The flora of the region under review makes up a wonderful collection, while the fauna includes many wild creatures now nearly extinct in these islands. There is the eagle, the wild polecat, the curlew, whose eerie cry of warning of impending danger to its fellow creatures around it is the bane of the sportsmen, and a host of others who meantime find sanctuary in the Cairngorms. These would all be preserved. Concerning the proprietors of the proposed park, the largest is H.R.H. the Princess Royal, widow of the late Duke of Fife, who owns the Mar Forest; Glen Avon is the property of the Duke of Richmond and Gordon, while part of Ben A'Bhuird and Ben Avon are the Invercauld property of Lt.-Col. A. H. Farquharson. Rothiemurchus and Glen Einich belong to Mr. Grant of Rothiemurchus, while Glenfeshire is the property of Sir George Macpherson-Grant, Bart., of Ballindalloch. Rising thus at the extreme end of Aberdeenshire, on the borders of Perthshire, the proposed park would end in Banffshire.

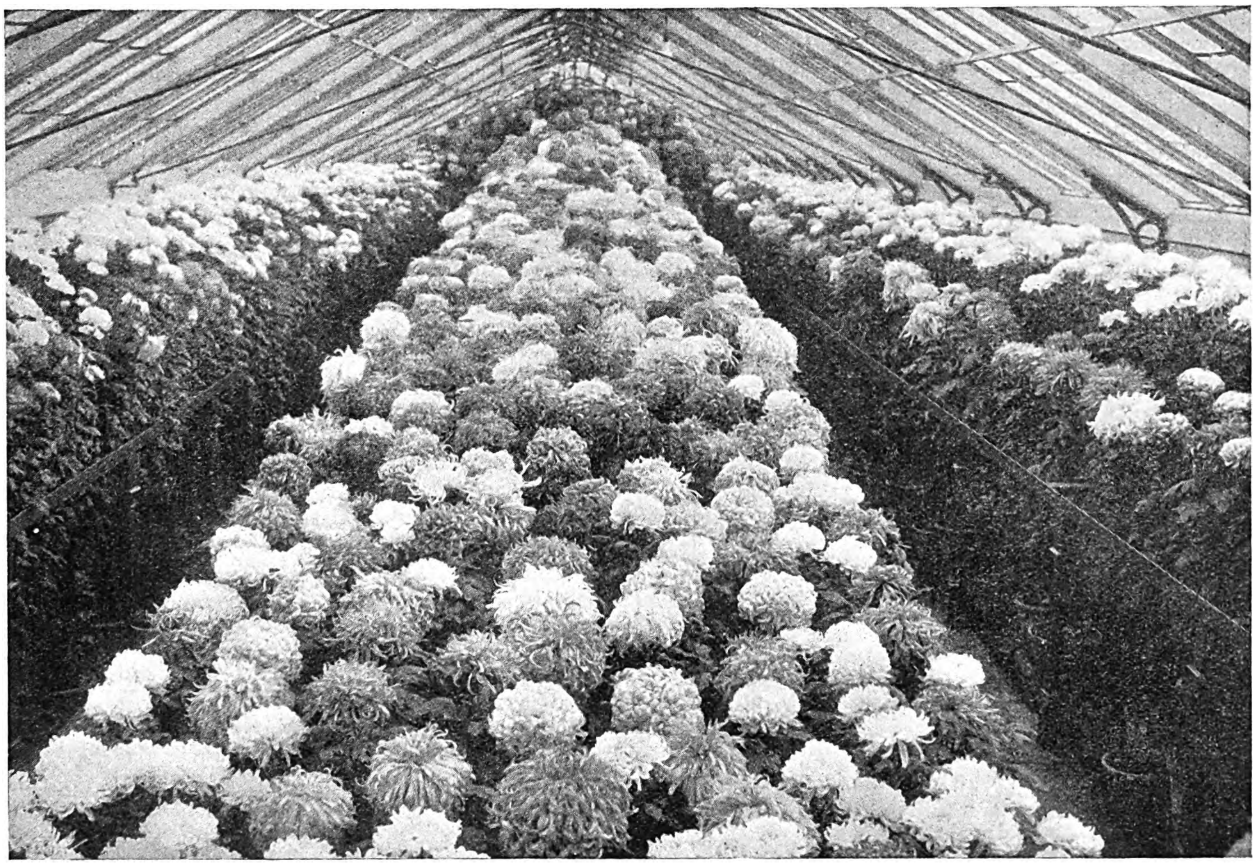

FIG. 202.—CHRYSANTHEMUMS AT OAK HILL PARK, ACCRINGTON.

Chrysanthemums at Oak Hill Park, Accrington.—In almost all large centres of population it is the custom for the Parks Department to produce an autumn display of Chrysanthemums, provided there is a suitable glass structure in which to house the plants. The popularity of such displays is beyond all question, as the attraction of beauty in form and colour is the same in all parts of our islands. We cannot possibly reproduce all the photographs of public Chrysanthemum Shows we receive, but we have pleasure in illustrating the display provided in Oak Hill Park, Accrington, by Mr. H. Boyd, the Parks Superintendent of that borough. Before the end of November no fewer than nine thousand people passed through the greenhouses and admired the Chrysanthemums. The central grouping consisted of exhibition blooms of such fine varieties as Birmingham, Mrs. M. Sargent, Leicester, Charles Davis, Thalia, Aloma, Mrs. G. H. Pearce, Mrs. F. C. Maples, Mrs. Keith Luxford, Superb, Lady Findlay, Aquitania, Miss Ada Ellis and Lady Miller. The white variety along the sides of the house is Blanche de Poitou, and in front of this a collection of the best Single and Decorative varieties was arranged.

Celery-growing in the Isle of Axholme.—Celery-growing is becoming an important industry in Cambridgeshire and Lincolnshire, especially in the Isle of Axholme, which forms the northern corner of the latter county and covers an area of about 50,000 acres. An account of the Celery-growing industry in the Isle is given very thoroughly by Mr. Arthur Jones and Mr. S. M. Makings, in a booklet entitled, *Celery Production in the Isle of Axholme*, published by the Midland Agricultural College, Sutton Bonington, Loughborough, price 1s.

Appointments for the Ensuing Week.—MONDAY, DECEMBER 9: Birmingham and Midland Counties Gardeners' Association's lecture. TUESDAY, DECEMBER 10: Royal Horticultural Society's Committees meet; Jersey Gardeners' Society's meeting. WEDNESDAY, DECEMBER 11: Wimbledon Gardeners' Society's meeting: Sheffield Chrysanthemum Society's lecture. FRIDAY, DECEMBER 13: Royal Horticultural and Arboricultural Society of Ireland's meeting. SATURDAY, DECEMBER 14: Leeds Paxton Society's Vegetable Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Sir Joseph Paxton.*—Sir Joseph Paxton has now received, through the electors of Coventry, the highest honour which his countrymen have it in their power to bestow. And he has well deserved it. From a very humble station he has risen by a rare combination of industry, talent, enterprise and integrity, to the highly honourable post conferred upon him. Long may he live to fill it with credit to himself and advantage to his country. We are precluded by our compact with the public from engaging in party politics. Even in the absence of such a compact we should avoid them. We may, however, venture to say, what we know that the great middle class of English will heartily re-echo, that such men are much wanted in the House of Commons, independent, honest, fearless, not to be intimidated by mob violence, not to be deluded by sentimental folly, not to be cajoled by Treasury blandishment. What his politics may be is in our eyes immaterial; good men and true are to be found on every side of the House of Commons. But this we may say of Sir Joseph Paxton, whom we have known for many a long year, that he is a thoroughly upright as well as a clever man, and of the true stuff of which recruits for Parliament should be made. *Gard. Chron., December* 9, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Hybrid Epidendrums.—Hybrids of the E. Endresio Wallisii type thrive well when grown in the intermediate house, and are now producing roots freely in conjunction with the robust young growths. The plants should be well supplied with moisture at the roots each time the compost approaches dryness. These Epidendrums should make a grand display of flowers for many weeks during the late spring months. The plants should be examined frequently for the presence of small scale insects, which are generally to be found in the axils and on the undersides of the leaves; these should be removed by careful sponging and a small, pointed stick, so soon as detected.

Tall-growing Epidendrums—Such species as E. radicans, E. O'Brienianum, E. xanthinum, E. Boundii, etc., which produce long, Reed-like stems, and are useful for covering pillars and bare wall spaces in the warm houses, are seldom out of flower. They grow equally as well in an intermediate temperature as in the warm house, provided abundance of moisture is afforded, chiefly by syringing, during the growing season; the frequent use of the syringe will also keep insect pests, especially thrips and red spider, in check. If the plants have grown too tall or are inclined to be leggy, the top portion of the growths, with aerial roots attached, should be removed. These may be inserted in fibre and Sphagnum-moss close to the rim of a seven-inch pot or pan, in which ample drainage is provided. If placed in a warm and humid atmosphere, where the pots and plants can be sprayed at frequent intervals, the growths should quickly become established. Those Epidendrums which produce side-shoots may be propagated by removing these and treating them as advised for terminal growths.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Peaches and Nectarines.—Where the old fruiting wood was cut out after the crop was gathered in the autumn, there now remains very little to be done in the way of pruning. The trees, however, should be loosened from the walls for the purpose of cleansing and readjustment, and in doing so do not hesitate to cut out superfluous shoots and bare wood which escaped the autumn pruning operations. Gardeners usually tie in far too many shoots on Peach trees and do not allow sufficient space between each shoot for the leaves to function, or for the fruits to develop properly. By far the greater part of the successful training of a Peach tree lies in the system of disbudding carried out on the trees in the early spring; for when carrying out this operation, the grower is planning and anticipating events, rubbing out or retaining certain shoots, having a definite object in view for the future development of the tree. In a fully developed and well furnished tree, a shoot is retained, so near to the base as possible, on each fruit-bearing twig. This shoot is termed "successional" and it is back to this successional shoot that the fruited growth is pruned each autumn, so that there is as little bare wood as is practicable. A certain amount of bare wood is unavoidable in the full development of the tree, but by careful and judicious disbudding and other cultural requirements, the chief of which is abundance of moisture at all seasons of the year, every foot of wall space may be furnished with fruiting wood. Many gardeners tie the loosened branches into small bundles and suspend these at some little distance from the walls, for, they state, it retards the development of the blossom in the spring. What useful purpose this retarding serves I have always been at a loss to appreciate. I would rather get on with the cleansing and tying now, while the weather is open, than put it off until the spring, when the buds are swelling and the weather more severe. What, I believe, is of great importance, is to know "just when" to get on the shelter curtains to protect the blossoms.

Nailing and Tying.—Where the branches and twigs were secured to the walls by shreds and nails, every particle of the old shreds should be removed and burnt; but the nails should remain until the branches are all tied in again. The retention of the nails will save a lot of unnecessary hammering, and those not required can be easily knocked off, the soundest collected and passed through the fire before being used again. Before any tying-in is attempted, the walls should have a thorough cleansing with some reliable spray, such as lime-sulphur (one part in twelve parts of water), or a five per cent. tar distillate put on with some force so that it is driven into every crack and corner to eradicate red spider and other pests. The bundles of branches and twigs may be subjected to a like spraying, or sprayed after they have been secured to the walls. If scale is troublesome try a nicotine spray (one ounce to three gallons of water). The best time, however, to eradicate this pest is towards the end of May and in June, when the tiny scales have left the old shell and are on the move. They simply shrivel up at that time when sprayed with nicotine, and this spray, if applied to the trees in the evening, is not in the least injurious to foliage or fruits. When tying in there should be a space of from four to six inches between the fruiting twigs. The more space the better, as it will facilitate the tying-in of the successional shoots next summer. See that the ties and fastenings do not compress the shoots unduly, or that the branches rub on the sharp edges of nail heads, as both are a fruitful source of gumming later on. It may not be necessary to shorten any shoots on established trees, but it may be necessary in the case of young trees to preserve a correct balance when building up the framework, and in doing so always cut to a triple bud.

Varieties.—Possibly the most popular Peach for out-of-doors is Peregrine, a very free cropper; the colour of the fruit is a brilliant crimson; the flesh is yellowish-white, firm and richly flavoured. Royal George, although a very old variety is still very popular: it succeeds the former in season, and is most reliable. For flavour and reliability the variety Bellegarde would score very high; its season is early to mid-September, and the colour is golden-yellow, almost covered with dark crimson mottling, the flesh pale yellow. Prince of Wales resembles the last-named in colour, but its season is somewhat later; the flavour is excellent, and on the whole it is most reliable.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Primulas.—Primula malacoides and P. kewensis are most serviceable plants for the embellishment of the conservatory and dwelling-house during the dull days of early winter. They require a somewhat dry atmosphere, with plenty of fresh air when the weather is favourable. These Primulas require careful watering at all times, and their roots should be watered only when absolutely necessary, for if overwatered, they damp off. Primula sinensis is now producing its flower spikes. This Primula should be grown in a house having a dry, warm atmosphere and a temperature ranging from 50° to 55°. Liquid cow-manure should prove beneficial in the production of healthy foliage and fine bright flowers.

Begonia Gloire de Sceaux.—This plant delights in plenty of heat while it is making its growth. Plants of this Begonia that have filled their receptacles with roots may require some assistance in the form of liquid manure to maintain active growth, for they are gross feeders. Any check to growth now, caused by starvation, will be very evident when the plants are expected to flower at a later date. Attend to the staking of the plants, and when their flowering stage is reached, maintain a slightly lower temperature with less atmospheric moisture.

The Cold Frames.—Many flowering plants may be grown on in cold frames by covering the lights during sharp frosty weather. Plants which are merely wintered in cold frames are mostly so nearly hardy that it is only during spells of severe weather that the lights need be closed tightly; at all other times admit air night and day, always in proportion to the outside temperature. The chief condition to guard against throughout the winter is dampness, therefore never coddle the plants, but keep them sturdy and healthy by free ventilation. It is also necessary to examine the plants carefully on fine days and remove any dead leaves. Slugs and other vermin, such as mice, often prove troublesome, especially to Carnations, and these should be trapped.

Potting Materials.—The placing of potting materials under cover during the winter and early spring months is an important essential to good cultivation, although this advice is somewhat belated; however, if not already done, it should be attended to without delay.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Early Peaches.—Houses closed now, or which it is intended to close at the New Year, should now be ready. The roots of the trees should be in a thoroughly moist condition and confined to inside borders. Little or no fire-heat will be necessary during the early stages; it is a good plan to turn on a little heat early in the morning and maintain a gentle circulation throughout the day, regulating the temperature by reducing or increasing ventilation, and shutting off the fire-heat when the house is closed; a temperature of about 45° will be safe throughout the night. Watering should not be neglected, and pure water at a temperature of 80° is best suited for trees at this stage. Houses started at the New Year have something in their favour and will withstand a slightly higher temperature, with air on fine days, but little or no advance on 45° as recommended for earlier trees should be attempted through the night. On very cold nights it is wise to allow the temperature to fall a few degrees lower.

Mid-season and Late Peach-houses.—These should be thrown wide open, fire-heat being out of the question unless there is danger of frost getting into the pipes. As these trees will be retarded until the flower buds are ready to burst, the pruning and cleansing may be held over for bad weather, especially for the latest trees. Any alterations or additions to the borders may be carried out when the weather is mild and favourable to the disturbance of the roots. The best months for planting have gone by, but the introduction of large trees especially may be deferred for a month or more, when the compost, protected from cold, will favour the immediate production of new roots. If the houses are crowded with tender or half-hardy plants, as is often the case, bud-dropping in the spring often results, and proves not infrequently fatal to the production of a crop of fruits. Root-pruning in late houses may still be carried out; this phase of Peach culture seldom receives the attention its importance demands. One often sees trees producing gross wood, and growers endeavouring to check this by cutting away the strong shoots at their base. If it is necessary to check undue luxuriance of growth the roots must have attention, and they may be simply shortened, or the trees lifted, and their roots shortened according to the condition of the trees. When they have occupied the same position for several years without being disturbed, it is necessary to proceed cautiously with repressive measures. It is, however, essential to cut back any strong roots that have gone down into the subsoil, for in no small degree do these promote the soft, unripened growth. It is necessary to keep the roots near the surface so that they can get sun and air, the chief factors in the production of an abundant crop of fruits of good quality.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

The Rock Garden.—Attention should be given to plants on the rock garden each week at this season of the year, the removal of decaying leaves being an important operation as if allowed to remain they soon cause damping and decay of the plants. It is advisable to examine recently planted subjects and make the soil firm about those which have been loosened or partly washed out by heavy rains; if the soil is wet and sticky, place a little dry compost about the plants before firming them.

Herbaceous Borders.—When well managed, herbaceous borders constitute one of the most interesting features of the flower garden. During early winter, these borders do not, in many instances, get the attention they deserve, yet it is at this time that much useful work can be carried out on borders which have not to be re-made. Strong-growing plants, such as Michaelmas Daisies, Heleniums, Helianthus, Phlox, etc., give the best results if they are lifted, divided, and fresh young pieces from the sides of the clumps replanted annually. Dig a liberal supply of well-decayed manure or vegetable matter into the sites they are to occupy before planting, as they are all gross feeders. The dying stems of all herbaceous plants may be cut down to within three or four inches of the ground; in due course, the shortened stems will become loose and can be removed. There is much in favour of leaving the stems full length, especially in cold districts, until the turn of the year, or just before young growth commences. By doing so a considerable amount of protection from frost is afforded, and apart from this, the effect of the various brown-coloured stems is often very pleasing. Yet all gardeners like to see their borders neat and tidy during winter, so well as in the spring and summer. All groups of bulbs should be clearly labelled, so that there will be no chance of damaging the growths before they come through the soil. Bulbs and other plants that have been established for years and which it is not advisable to disturb, should be given a liberal top-dressing of well-decayed manure and old loam. This may be lightly forked in just beneath the surface; it is never wise to dig the soil deeply with a spade around established plants, as this cannot be done without destroying many valuable fibrous roots. Where the construction of new borders is contemplated, or existing ones are to be replanted, no time should be lost in having them deeply trenched and the planting carried out at the earliest possible moment. If such cannot be accomplished by the first week in December, then the planting had better be deferred until the beginning of February. Where collections of Delphiniums, Pyrethrums, Hollyhocks and similar plants are grown, sifted ashes placed around and over the crowns will prevent slugs from eating the tender young crowns and help to protect them during severe weather.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Peas.—If not already sown, no time should be lost in getting the seeds into the ground. Select a round-seeded variety, and sow the seeds in shallow drills in a dry border, preferably facing south. Early Peas do best in a sheltered border in front of a wall. Mice are likely to prove troublesome, and traps should be set for them.

Parsnips.—The decayed foliage and weeds should be cleared from Parsnip beds. Parsnips improve in flavour if left in the ground and lifted when required. Dry Bracken placed over the bed will prevent the ground becoming frozen in frosty weather, and so permit the roots to be lifted when required.

Garden Paths.—If new paths are to be made or old ones renovated, this work may be attended to now. All paths which require levelling should have the surfaces forked over, levelled, and covered with a layer of fresh gravel. In making new paths, make sure that rough stones or brick-bats, clinkers, etc., are placed at the bottom for drainage; while if wide paths are being made, four-inch drain pipes should be placed down the side and catchments placed at intervals to drain off the surface water. If made well in the first place the paths should last for many years, if re-surfaced periodically.

Autumn-sown Onions.—The bed of autumn-sown Onions should be examined and weeded. Spent Mushroom-bed manure, passed through an inch-mesh sieve, may be applied as a light mulching about the plants to afford protection from frost. The ground intended for next year's Onion crop should be trenched now and enriched with plenty of farmyard manure. The surface should be left so rough as possible. After the ground has been trenched, apply a moderate dressing of basic slag.

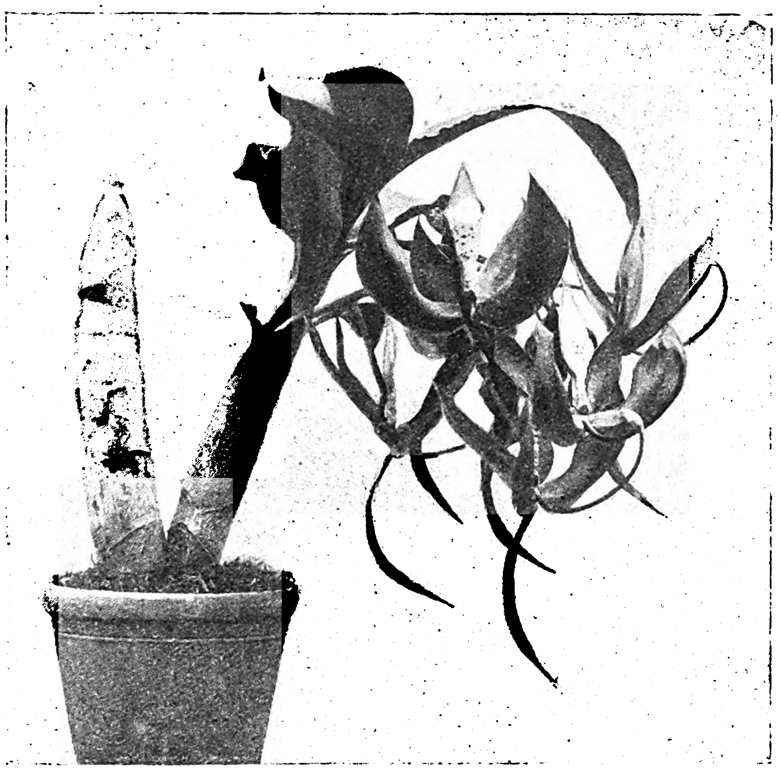

FIG. 203.—CYCNOCHES LODDIGESII.

(see p. 442.)

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Seakale.—Permanent Seakale beds should now be cleared of the old foliage and the crowns covered with Seakale pots, boxes, etc., to exclude light and air, otherwise the growths will not blanch properly. If early forcing is to be done, cover the whole plot to a depth of several feet with leaves or other fermenting material, which will greatly accelerate growth: without this, cutting will not be possible before April.

Forcing Frames.—A quantity of fermenting material should be prepared for these in good time so that it may be turned repeatedly over before use. Where leaves are plentiful they may be used alone, or mixed with rough horse manure, or if leaves cannot be had, manure alone will do, but the heat from the latter is not so lasting as when mixed with leaves. If mixed under cover, watering of the material should be attended to, otherwise burning, as it is termed, may take place.

Morello Cherries.—If the old and superfluous growths were removed from the trees as advised after the crop was gathered, any re-arrangement of the branches necessary should be attended to and the young wood, on which next year's crop principally depends, laid in and secured. Avoid over-crowding the growths, and only in the case of very young trees which have not filled their allotted space, should any cutting back of the new growths take place. Each leading shoot should be fixed securely to the wall close to its apex, or breakage by wind may occur soon after growth commences.

Cordon Trees.—These, both of Apples and Pears, may be attended to at any time now. Remove a few of the longest spurs, and shorten the growths which were cut back when summer pruning. All ties should be carefully tested as they soon rot, and if too tight, they should also be renewed.

Carnations.—Although cuttings of these root successfully at any time of the year, perhaps December is the best time to insert them to secure good plants to flower from next September onwards. Side-shoots about half-way up the flowering stems should be selected, and each removed with a heel; take off the lower leaves and shorten the heel if it is ragged. A box or case placed over the hot-water pipes is ideal for rooting them in, but a fierce heat should be avoided: a temperature of 50° to 55°, with bottom heat slightly higher, is most suitable. Place four or five inches of pure rough sand in the case, and make it very firm, then, with a small, blunt dibber, put the cuttings in only so deeply as to hold them erect: water well with a fine-rosed can, cover the case with glass, and keep it close for a week or so, except for an hour in the morning to dry the glass and freshen the air.

ALPINE GARDEN.

CENTAUREA PULCHERRIMA.

The Centaureas are not among my best garden friends, but I was induced by Mr. Ingwersen to give the subject of this note a trial and have done so with the fullest satisfaction. Partly with the object of checking its reputed ambition to attain a height of nearly three feet, this plant was placed in a hot, dry place, the soil being mostly stones and grit, but of ample depth. With this treatment it succeeded in making a neat tuft of its silvery, deeply-cut leaves, and throughout June and July it blossomed freely. The erect flowering stems hardly reached a foot high, which was just what I wanted on its particular ledge in the rock garden, and their large Sweet Sultan blooms, round as a crown-piece, made a very handsome show in their bright, keen pink against the silvered foliage.

In spite of its woolliness and southern origin, C. pulcherrima has proved winter-hardy here both as regards frost and wet. It promises, indeed, to live up to its designation of being a sound perennial and an ornament of no small value where grey-leaved subjects of gentle colouring are desired. *N. Wales.*

GENTIANA SINO-ORNATA.

May I, as possibly one of the largest growers of this beautiful plant, add a few words to the correspondence that has appeared lately in your columns concerning this species and a fungus which attacks it, in case they may be of use to other cultivators. In this district, in the weald of Sussex, with a lime-free, acid soil, Gentiana sino-ornata is one of the happiest and easiest plants to grow. We have thousands of plants of it, both in the sandy, slightly sticky loam overlying the sandstone of the district, and in the old kitchen garden soil behind my residence.

Like many other Gentians, this plant does not greatly approve of pot cultivation, and is by far happier in the open ground, and here at least does not object to being exposed to sunshine to any great extent, but I must admit that the plants in the kitchen garden which are in part shaded by a hedge running from east to west, are generally slightly better than those which are exposed to all the sun we get. Very noticeable is the objection of this plant to manure in almost any shape or form, especially when growing fully exposed. The foliage looks sickly and yellowish, and the plants of the same age in manured ground, even in ground manured two seasons back, scarcely reach half the size of those in unmanured soil.

Lime is generally, but not always, for some curious and unexplained reason, detrimental to this plant. With us, and in most places known to me, lime spells ruin, but the exception occurs in Major Stern's noted garden, where this plant thrives amazingly in an old chalk pit. I cannot explain this, but suppose there is a perfectly good reason for it, especially as in the garden mentioned many rare Rhododendrons were growing satisfactorily in rather dense shade in leaf-mould very freely intermixed with broken chalk. Possibly the shade was of assistance, too, as I have noticed that Lithospermum prostratum, in nature, to my personal knowledge, is as often as not a limestone plant, but objecting strenuously in most gardens to a limy soil, often succeeds perfectly in limy soil so long as provided with fairly dense shade. All this may raise questions I must leave to wiser heads to answer and return to the subject in hand.

Close by here, in the garden of a friend, and a director of our firm, Gentiana sino-ornata is grown in peaty soil overlying a sticky, grey clay soil which was a few years ago a hopeless swamp. Since trenching operations broke up the hard pan of clay, and part of the clay was intermixed with the peat, this has become an extraordinarily fertile soil for growing many rare plants, and here, too, this Gentian is grown by the thousand in the open ground in long lines, and shows the same abhorrence to any manurial agent. Even places where bonfires have been lit in the past and where probably an excess of potash remains in consequence, are evident to the most inexperienced eye, and the subject of enquiry and comment.

My contention is that the fungus in question does not attack vigorously growing plants, and that I suspect that either lime or manure is present in the soil in question, and that plants grown in full sun feel the effect of these disturbing substances more than those growing in partial shade. Where the position is sufficiently moist, exposure to sun, although making a noticeable difference, cannot be stated to be really detrimental, but partial shade would be a distinct advantage in very dry gardens or in seasons like the past one, when artificial watering became impossible in many districts.

I believe I can truthfully state that our Gentiana sino-ornata did not receive more than two waterings during the two long spells of drought experienced here, and at the time of writing, November 22, I could still pick several thousands of perfect flowers in spite of much bad weather experienced lately, including 12° of frost, and at least one snow shower. Last year, at Christmas time, I was able to fill a large, shallow bowl with perfect blooms, which says much for the vigour and value of this finest of all autumn-flowering Gentians.

In conclusion—a point of great importance, here—we have long discontinued propagating this plant from cuttings of the young shoots in early spring, an easy and ready means of working up a big stock quickly. I find that the resulting plants do not even faintly compare for health and vigour with plants grown from careful spring division, which begin an independent existence with a bundle of the thick, fleshy roots stored with plant food from the previous season. Cuttings have to start without this food reserve and unless grown under absolutely ideal conditions, rarely give a good account of themselves. Indeed, it is preferable to strike cuttings, more or less "Irishman's Cuttings," from the running shoots which carry the flowers, and frequently root on their own account, in late summer, and keep these in pots in a cold frame, well ventilated during the winter. This will result in fleshy-rooted young plants which are capable of growing so well as to almost equal the spring divided plants, and the best advice I can give growers who have had poor success with this plant is to procure strong plants with fleshy roots in March or April and plant these in soil conditions as indicated above, see that the plants do not unduly suffer through lack of moisture, and where moisture is scarce, to provide an approximate equivalent of shade. This, and the absence of lime, should go a long way to prove that the constitution of this fine plant, if rightly handled, is all that could be desired. *W. E. Th. Ingwersen.*

FLOWER GARDEN.

ADLUMIA CIRRHOSA.

Adlumia is a genus of the Order Papaveraceae, which consists of one species only, A. cirrhosa, which used to be called Corydalis fungosa.

This plant, a climbing biennial, is a native of North America. It has slender, twining stems and pale green, tripinnate leaves whose petioles twine and act as tendrils. The small flowers are pale rose-coloured.

Adlumia cirrhosa is half-hardy and an attractive climber for the greenhouse. When grown in the open it is shown to best advantage if it is allowed to climb over a shrub after the manner of Tropaeolum speciosum. In this case the seeds of A. cirrhosa should be sown in a shady spot in the garden during May. Although it is a biennial, when it is in a congenial soil and situation it is as good as a perennial, for it sows itself freely. It does not begin to climb until its second year, and flowers in June.

For greenhouse use, those who are fortunate enough to obtain seeds of Adlumia cirrhosa might try experiments with them in order to induce this plant to flower in gentle heat during the winter or spring. *Victoria Slade.*

ORCHID NOTES AND GLEANINGS.

CYCNOCHES LODDIGESII.

The Cycnoches constitute a very singular genus of deciduous Orchids, whose flowers are of a most peculiar form and character; the male and female flowers are often produced on distinct spikes on the same plant, the former more or less resembling a swan. Certain species are neither showy nor beautiful, yet they are most interesting to many.

Cycnoches Loddigesii, one of the strongest growers and easiest to bloom, is here carrying seven male flowers (Fig. 203) which are four inches across, and have a long and gracefully curved column with sepals and petals of brownish-green, the former with darker spots. The flowers are produced in drooping racemes which appear from near the axils of the leaves at the apical portions of the pseudo-bulbs.

All Cycnoches should be grown suspended at the coolest end of the East Indian house, or the warmest end of the Cattleya house; they have a long period of rest, and during that time—from now onward—will need but little water at the roots to keep the pseudo-bulbs in a moderately plump condition. In spring, so soon as growth commences, the plants should be repotted; turn them out of their receptacles, cut away the majority of the roots—which generally perish during the resting season—leaving just sufficient to help support the plant when repotted. Use two parts of Osmunda fibre and A1. fibre and one part of Sphagnum-moss as a potting compost, mixing the whole well together. Keep the base of the plant level with the rim of the pot, and fill up with compost pressed moderately firm. Water should not be applied for some considerable time after potting; indeed, little is necessary until the new roots have permeated the fresh material, but as growth advances, more should be given, and when the pseudo-bulbs are nearing completion and the plants are in flower, they should not be allowed to become dry.

The foliage of Cycnoches is delicate and very susceptible to thrips and red spiders; to prevent attack by these pests, spray the plants overhead on bright days, and dip them in insecticide once or twice a week.

Cycnoches Loddigesii was introduced into this country in 1530, and I believe has not, until recently, been seen in flower here for many years. The several species of Cycnoches are very tenacious of life, and will live many years under unfavourable conditions. I have exhibited the same plants of Cycnoches chlorochilon for so many as twenty-nine years in London, and although they were not exceptionally vigorous during the later years, they remained perfectly healthy and seldom failed to flower—and this was at Stamford Hill. *F. W. Thurgood, Shepperton.*

INDOOR PLANTS.

ANGELONIA GRANDIFLORA.

Angelonia grandiflora was not introduced into cultivation in Europe until 1897, and so no mention of this charming intermediate-house flowering plant is found in Nicholson's *Dictionary of Gardening*, or in the supplement thereto. Only one species is mentioned in that work—A. salicariaefolia, and the genus is referred to as consisting of "very pretty stove herbaceous perennials."

Bailey, in his *Cyclopedia of Horticulture* describes six species, including the two mentioned above, and states that the genus has in all about two dozen species. Continuing, Bailey writes of A. grandiflora, "It is an excellent plant for winter bloom, particularly the white-flowered variety alba."

I am not personally acquainted with the variety alba, but the type species certainly makes an excellent pot plant, and appears to be of the easiest culture. Seeds sown last spring and later transplanted into "flats" at a distance of two inches apart each way, were stopped once and potted on as required, until they were finally in five- and six-inch pots. A good substantial compost was used on each occasion, and the plants grown on in full sun in an intermediate house temperature. They made sturdy growth, branching freely from the base, and sending up many slender, quadrangular stems which reached a height of eighteen inches or two feet. The entire, slightly-toothed leaves are set closely together along the stems. They are bright green in colour, and somewhat viscid to the touch and are possessed of a peculiar and not displeasing odour. From the axil of each upper leaf appears a solitary flower, poised gracefully at the end of a slender pedicel which does not exceed the leaf. Each flower is about one inch in diameter, irregularly bilabiate, with the lower lip trifid, and the upper, which is smaller, bifid. The four stamens are arranged in pairs.

Violet, perhaps, best describes the colour of the corolla, the throat of which is of a paler hue, with darker markings. A white blotch is present on the lower lip.

The whole inflorescence forms a graceful raceme resembling in general appearance that of Alonsoa. The colour blends charmingly with salmon or with lemon-yellow, and the flowers remain in good condition for a lengthy period. The plant referred to above commenced flowering at the end of September. *T. H. Everett, Pleasantville, New York.*

REINWARDTIA TRIGYNA.

Reinwardtia trigyna is a beautiful winter-flowering plant of the Natural Order Linaceae. It is one of a very small genus comprising three species, all hailing from the mountains of the East Indies, and was introduced in 1799. The specific name trigyna is in reference to the stigmas, which are three in number.

The flowers are a very clear yellow in colour, shading just a little deeper towards the centre where the five obovate petals contract to join in a short tube. They are borne on the current season's growths, either singly or in small clusters. The ovate-oblong leaves are rather a dark green in colour, between two-and-a-half and three inches long. Both the upper and lower surfaces are glabrous.

Cuttings of the strongest and best joints of the old plants should be rooted in spring in a suitable propagating case. They should be grown on in an intermediate temperature until established in six-inch pots. The plants will be much better if encouraged to become bushy by frequent stopping when in the young stage. During autumn, when the growths have been produced, they should receive an abundance of air and sunlight so as to allow them to ripen for flowering during the winter. A temperature of between 55° and 60° should be ample to open the blossoms and prevent damping off.

The most destructive pest of this subject is red spider, and this may be kept in check by adequate syringing during growth, which will also greatly benefit the plants generally. *F. H. Wright, University Botanic Garden, Cambridge.*

PANAX BALFOURII.

In establishments where foliage plants are still grown and cherished, several species of Panax are worthy of consideration.

P. Balfourii is a plant of pleasing habit, its luxuriant foliage draping the rim of the pot and rising to form an irregular pyramid. The orbicular pinnae are deeply serrated, rich green, freely marked with creamy-white, the edges being entirely white; a well-grown plant is a striking ornament for the warm house and valuable for decorative purposes.

With P. aureum, P. fruticosum, and the many forms of the last-named variable plant, P. Balfourii thrives in a mixture of loam and peat, to which may be added a little leaf-soil of good quality, and sand; the plant was introduced a good many years ago from New Caledonia by, I think, M. Micholitz, for Messrs. Sanders.

P. Victoriae is another desirable Panax, often accorded specific rank; it is, possibly, a form of the very variable P. fruticosum. Root-cuttings, sections of the stems, and suckers—occasionally produced by "cut-backs" when placed over or plunged in bottom-heat—provide means of increase; the plants are easily managed and are invaluable where warm-house subjects are staged for effect. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

SISYRINCHIUM STRIATUM.

It may be of interest to supplement the note by *A. D.* on the above plant which appeared on page 303. The accompanying photograph (Fig. 204) was taken by me a few years ago in the nurseries of Messrs. Robert Veitch and Son, Exeter, and it shows a flourishing colony of Sisyrinchium striatum growing in a chipped-stone path, and producing an abundance of flowers. The original plants were growing on the rock-work, but these had all died off after scattering their progeny along the path. The self-selected site evidently suited the plants well, and as this photograph was taken during a prolonged dry spell, the drought-resisting qualities of this species need not be questioned. *H. Greaves, Minehead.*

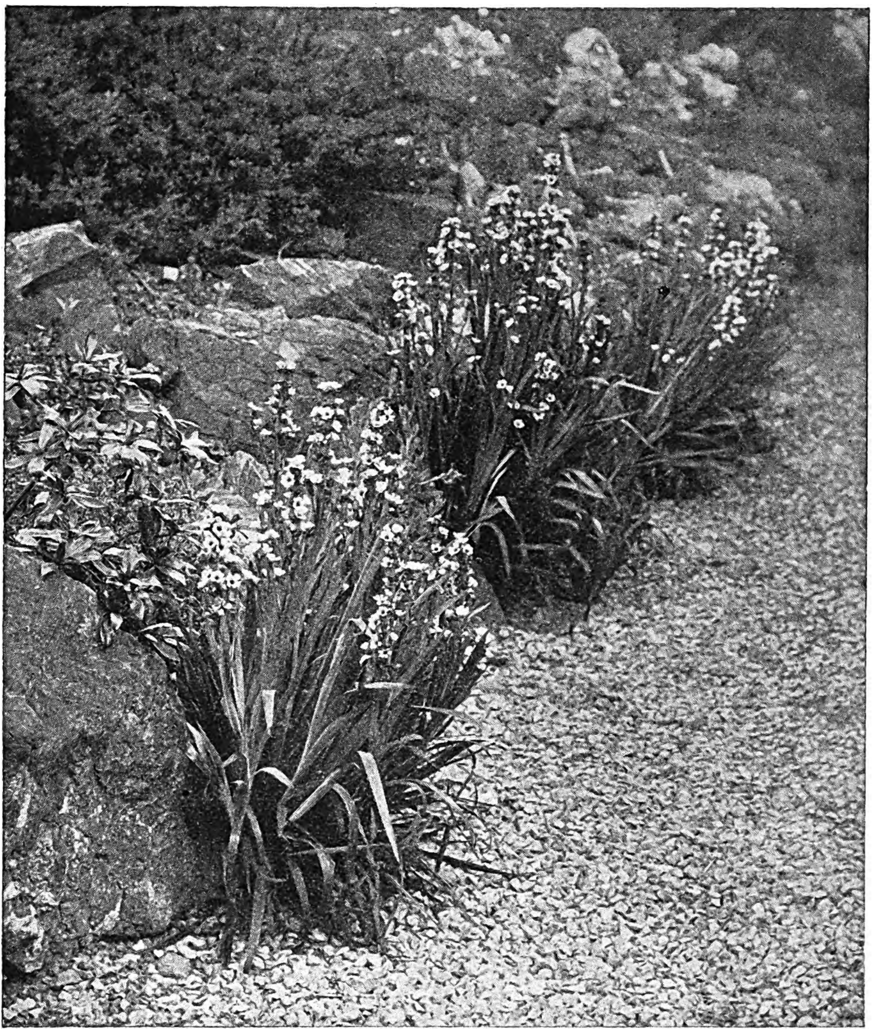

FIG. 204.—SISYRINCHIUM STRIATUM.

LIATRIS.

The genus Liatris is confined to the eastern and southern portions of North America. It comprises some twenty-five species of hardy, herbaceous perennials, as yet practically unimproved by horticulturists, but containing many handsome species well adapted for garden embellishment, and suited for the hardy border, the wild garden, and some species, perhaps, for the large rock garden. It seems probable that the future will bring improved varieties, for already the stately flower spikes are to be found with increasing frequency in the florists' shops of New York and other cities, and they lend themselves to artistic and dignified arrangement. Some of the species are variable in nature and white forms are known as variants from the rose-purple shades which prevail throughout the genus.

Liatris is included in Compositae and all the species are late summer or autumn flowering. They are of erect growth, from a more or less globular tuber, usually simple, but sometimes a little branched. The leaves are alternate or scattered, entire, narrow, and from one- to five-nerved. The flower heads are borne in narrow racemose or spicate, wand-like inflorescences.

The Liatrises are not at all exacting with regard to cultural conditions, thriving in almost any average soil, but responding readily to generous treatment, and only giving of their best when well cared for. They are readily increased by means of division of the roots at the commencement of the growing season, or by seeds sown in the early fall. Plants from spring-sown seeds do not usually bloom the same year. Most species occur naturally on dry, sandy soils, but L. spicata favours moist situations.

Probably the most popular species as a border plant, or for cut flower production, is L. pycnostachya, a native of the prairies from Indiana to Minnesota, Nebraska and the south. The flower spikes attain a height of from four to six feet, and are leafy throughout. The flower heads are about half-an-inch in length and are set densely along the spike for a length of from one foot to two feet; they are of a purple hue.

L. elegans is a showy species well adapted for airy situations; a native of Virginia to

Alabama, Florida and Texas, seldom exceeding a "height of four feet, the four- or five-flowered heads are very numerous, being arranged in a dense spike or raceme, and they are purple in colour.

L. scariosa is a handsome plant about five feet high. The large, twenty-five to forty-flowered heads are arranged much more loosely upon the inflorescence than in the preceding kinds. It enjoys a wide distribution, practically throughout Canada and the United States of America, to the east of the Rocky Mountains, and is quite variable in nature.

Other interesting species are L. squarrosa, L. cylindrica, L. punctata, L. spicata, L. graminifolia, L. acidota, L. gracilis. L. tenuifolia and L. Chapmanni. Lacinaria is a synonym of Liatris. *T. H. Everett, New York.*

TREES AND SHRUBS.

ERICA AUSTRALIS.

ERICA australis has the merit of being both beautiful and interesting. It is beautiful when in flower, and interesting on account of its distribution, form of flowering, and comparative rarity in gardens. These qualities are offset by the fact that the species is not fully hardy in all districts.

This Heath has been described as "ungainly" in habit. Perhaps this is so, when compared with some of the closer-growing species and varieties of Erica; but formality is not always to be preferred in the Heath garden, nor, indeed, in any garden where shrubs are a feature. Although E. australis may be fairly slow-growing, it may ultimately attain a height of at least six feet in certain localities, and if the conditions are suitable it may even exceed this.

Erect, although sometimes contorted in habit, this species appears to ramble on its upward way, rather than to soar up in tier upon tier of growths. Although the young shoots are erect and slightly woolly, these characters do not remain for long. The linear leaves are very dark green (although, of course, lighter in colour on the young growths) and are not above a-quarter-of-an-inch long, sharply pointed, and convex beneath. The arrangement of the flowers forms a conspicuous feature. These are borne from April to June (occasionally so early as March) in clusters of from two to as many as eight, terminating the growths of the previous year. Thus, instead of the type of inflorescence usually associated with the Heaths, the flowers of E. australis hang in clusters from the shoots. Their colour is bright purple, with a strong tendency towards pink. It is a difficult colour to describe, but sunlight causes the pink tinge to be more apparent.

Known as the Spanish Heath, this species also grows in Portugal. It is possible that the natural range is now much more restricted than formerly, but this, so far as the writer is concerned, is merely a suggestion. At all events, the plant succeeds remarkably well in Cornwall and south-west Ireland, and there are certain affinities between the maritime climates of countries on the south-western and western seaboard of Europe.

E. australis has been grown in Britain for over 150 years. It may be grown under quite trying conditions, but is not an object of beauty unless really happy, as the writer saw it not so very long ago in a very sheltered garden some thirty miles from London. A point of interest is that E. australis has been stated to be tolerant of lime, and confirmation of this would be appreciated by those who are fated to grow plants in calcareous soil.

There is a white variety, known as Mr. Robert. This, as might be expected, has leaves of a lighter green than those of the type. It is still rare in gardens and fairly expensive. I believe I am right in stating that the white form was named after the late Mr. Robert Williams, who found the plant in Spain shortly before he was called away in the Great War. If so, this is a memorial as beautiful as it will be permanent in our gardens. *L. B. C.*

MUTISIA DECURRENS.

DURING the past season or two I have been endeavouring, by observing established plants, to discover what aspect this remarkable climbing evergreen shrub likes best. No very definite conclusions have been arrived at, but one thing seems quite obvious, which is that the plant does not enjoy the warmest situation with a maximum of sun. I have an old specimen rambling about some thin-habited shrubs with a south-westerly exposure, but the splendid flowers which are thrust out of the tops of the climber's supports are very apt to droop and sometimes to wither when the August sun is hot and prolonged. But whether this is due to the direct effect of the sun or to a combination of that and a poor, stony, singularly dry root-run, I do not known. However, comparing this plant with some at Bodnant which are on an easterly wall and in cooler and richer loam, I am much inclined to think that M. decurrens, like so many other Chileans, does better with such conditions as the last-mentioned. Mr. F. C. Puddle considers this a thicket climber, and he is doubtless right, but while I do not think the blossoms of the plants in his care are any larger or more numerous than my own, they certainly seem to have a longer season. At any rate, the next plants I secure are going to be tried on a cool side in the sort of place enjoyed by Berberidopsis corallina and Tropaeolum speciosum.

Mr. W. J. Bean, in his admirable description of this remarkable plant (*Trees and Shrubs Hardy in the British Isles*) alludes to a very successfully-grown specimen having had lots of stones placed on the soil about its roots. My veteran—now over fifteen years old—has also a number of stones around it, and I have observed that the suckers by which the plant spreads almost invariably appear from underneath one of these stones. By lifting the latter one may chance to get a nicely-rooted sucker, but it is by no means so easy to induce it to grow when potted-up, although it would doubtless do so in heat. I have kept such rooted off-sets alive for some time, and they have even made considerable growth, but they have a way of collapsing as suddenly as a Clematis will often do. As a matter of fact, much older plants will go off in the same way. One on a wall here expired with tragic abruptness just at flowering time. It was a young and apparently healthy plant, eight feet tall, and in its second flowering season. But I have found one or two other Mutisias quite as troublesome in this respect as M. decurrens. *A. T. J.*

GERMANDER.

THE English name "Germander," applied to various species of Teucrium and more especially to Teucrium Chamaedrys, L., Common or Wall Germander, appears to be derived, through the Low Latin form, *germandra*, from the same root as does "chamaedrys" itself, namely, the Greek *chamai*, on the ground, and *drys*, Oak, the reference being to the little Oak-shaped leaves of this plant, which may be found growing on stony ground, and also on old walls, over the greater part of central and southern Europe and western Asia.

The genus Teucrium, of which the Common Germander is a member, is a rather numerous one, the plants belonging to it varying much in habit. They are, however, well distinguished from other Labiates by the shape of the corolla, which is apparently without an upper lip. This is reduced to two small teeth, one on each side of the lower lip, which has thus five lobes, of which the middle one is large and concave.

The genus is not well represented in Britain. Four species only can be found growing in a wild state, namely, T. Scorodonia, L.; T. Scordium, L.; T. Botrys, L.; and T. Chamaedrys, L., already mentioned. Of these, the first two are certainly native, T. Botrys is doubtfully native, and T. Chamaedrys is almost certainly introduced, but is perfectly naturalised on old walls in a few places.

T. Scorodonia, or Wood Sage, which has rather inconspicuous yellowish-white flowers, is an extremely common plant, too well-known to stand in need of any description. From the point of view of cultivation for decorative purposes, it is quite devoid of interest.

T. Scordium, or Water Germander, is a plant favouring damp, marshy places. It is characterised by its oblong, toothed, sessile or nearly sessile leaves, which, like its weak stems, are more or less covered with soft hairs, and by its pale purplish-red flowers, which are all axillary, and have calyces whose teeth are short and of practically equal length. The plant is by no means attractive in appearance and has a very disagreeable odour. Its distribution in England is interesting and remarkable. It occurs only in a few places. These, such as the Isle of Ely in Cambridgeshire, are mostly situated in the east of England; but the plant has also been found in the extreme west of England, at Braunton Burrows, in north Devon, these two stations having practically the whole width of England between them. Judging from a comparison made between some plants sent me from this latter place, and others collected by myself in the Isle of Ely, there would seem to be some slight differences between the western and eastern forms, the latter being of larger growth and less hairy than the former; although I cannot state whether these differences are in any way constant. The plant, I may add, is fairly generally dispersed over Europe, except in the extreme north, and is also found in Asia.

T. Botrys, or Cut-leaved Germander, also has axillary flowers, but of a more pronounced purplish-red colour. These are arranged in whorls of about six, more or less. It is characterised by the calyx, which is very gibbous and has five practically equal teeth, and by the leaves, which are very much cut up and are rather pretty. Unlike the three other species of Teucrium found in Britain, which are perennials, T. Botrys is an annual. It favours stony and waste places and borders of fields, occurring throughout central and southern Europe. In England, it is to be found only in a few places in the south-east. There is a solitary field near Chipstead, in Surrey, where it grows in abundance, along with another Labiate rather rare in Britain, namely, Ground Pine (Ajuga Chamaepitys, Schreb.)—an interesting association. I believe the field is known to practically every London field-botanist, and is habitually visited when fresh specimens of this rare British plant are required. I have often wondered what would happen if by some unfortunate chance the field was ploughed up or, worse, built upon. It ought, I think, to be acquired by some such body as the National Trust. The danger of losing some of our scarcer species of wild plants is daily becoming greater, and steps ought to be taken to preserve them in their natural habitats. Fortunately, T. Botrys, although certainly a rather pretty plant, is not sufficiently attractive to arouse the desires of those "trippers" who make such devastating and needless raids upon the wild flowers of Britain; and the field I have in mind is, fortunately, somewhat off the beaten track, although Chipstead is now well served by both electric trains and motor-buses from London.

T. Chamaedrys, Wall or Common Germander, bears its abundant, reddish-purple flowers in whorls which form a rather loose, terminal raceme. The calyx is somewhat tubular in shape, and the five calyx teeth are almost equal. The leaves are deeply toothed and wedge-shaped at the base. The rootstock is rather woody. The plant is a very pretty one, suitable for the rock garden or for growing on walls. In Britain it is decidedly rare, being found only in a few places (such as Camber Castle, in Sussex, where I collected some specimens a few years ago), where it has become naturalised on old walls.

It has been stated that Linnaeus gave the name of Teucrium to this genus in honour of Dr. Teucer, a medical botanist. According to another account, he had in mind the plant which Dioscorides stated was first used as a medicine by Teucer, King of Troy, identifying this plant with Teucrium Scorodonia. Whether, assuming that he made it, this identification is correct or not, the fact remains that Wood Sage, in addition to other species of Germander, seems to possess some medicinal virtues. Many species contain bitter principles, and Wood Sage has been claimed as equal to Gentian (the drug is obtained from the rhizomes of Gentiana lutea, L.) as a bitter tonic and appetiser. It was at one time used in Jersey under the name "ambroisie" as a substitute for Hops.

In the past, various species of Teucrium were held in high favour for their medicinal virtues. Culpeper wrote in praise of both Wood Sage and Germander (*i.e.*, T. Chamaedrys), and mentioned numerous ailments which could (were it possible to believe him) be cured by their aid. At one time, Wall Germander was most highly valued as a constituent of the celebrated remedy against gout known as "Portland powder." This consisted of a mixture in equal parts of the leaves and tops of Germander, Birthwort root, Gentian root, Centaury and Ground Pine. The story is that an eighteenth century Duke of Portland received the formula from the son of an Englishman long resident in Switzerland, who had compiled a collection of medical formulae from various sources. Finding the remedy so excellent in its effects, the Duke made the formula public for the benefit of other sufferers, and it was much employed well into the nineteenth century. In addition to taking the drug, a strict dietary regimen had to be observed, which may have had something to do with the efficacy of the cure. In Culpeper's day, Germander does not appear to have been used in treating gout; at any rate, he makes no mention of this "virtue" in his *English Physitian Enlarged.*

Nowadays, as medicinal herbs, all species of Teucrium have fallen from grace, and are no longer used officially. They might repay further investigation from the medical point of view.

For the gardener, who is concerned with the decorative value of plants, the genus Teucrium is not one to be held in very high esteem, although some species are distinctly useful for the rock garden. The leaves of T. Botrys, as already mentioned, are very pretty, but the plant is apt to prove too robust under cultivation. T. Chamaedrys, as indicated above, is a pleasing rock garden plant, and some other perennial species are also useful, including T. montanum, L., which bears an abundance of cream-coloured flowers and grows wild in the mountainous parts of central and southern Europe and Asia Minor, but is absent from Britain. *H. S. Redgrove, B.Sc.*

PLANTS NEW OR NOTEWORTHY.

NYSSA SYLVATICA.

The genus Nyssa is represented by six or seven species of deciduous trees or large shrubs. Four or five are natives of the New World, and two species are found in the east, N. sessiliflora in the Himalayas and Java, and N. sinensis in central China.

Nyssa sylvatica, the Tupelo, or Black Gum Tree of eastern North America, is the only species listed in the catalogues of British nurserymen, and even of this species trees of any size occur but rarely in cultivation in British gardens. Two other species native of eastern North America, N. aquatica and N. Ogeche, have been introduced to cultivation in this country from time to time, but apparently require rather particular climatic and soil conditions for their successful cultivation. In *The Trees of Great Britain and Ireland,* by Elwes and Henry, it is stated there was, in 1906, a tree of N. aquatica growing at Whiteknights Park, near Reading, about thirty-six feet in height. The remaining two species are N. acuminata, growing in the swamps of Georgia, and N. biflora, a small tree found from north Carolina to Louisiana.

Native trees of N. sylvatica in eastern North America occasionally reach a height of one hundred feet with a trunk girth of about fifteen feet. There are three trees growing at Kew about thirty-five feet in height, one of which is illustrated (Fig. 205). The largest tree recorded as growing in the British Isles is at Strathfieldsaye, the dimensions of which were given in *The Gardeners' Chronicle,* 1899, Vol. XXVI, p. 162, as seventy feet high and four feet (not fourteen feet) ten-and-a-half inches in girth.

The great value of Nyssa sylvatica for ornamental and landscape planting lies in the wonderful autumnal colouring of its foliage. One of the trees at Kew is among the first of the trees in early October to develop its brilliant red colouring. There is, however, some diversity of colouring of the foliage on different trees. The leaves of the tree illustrated, for example, remain green until the leaves of the neighbouring brilliantly-coloured tree begin to fall. The predominant colouring of the second tree is rich yellow, tinted with red.

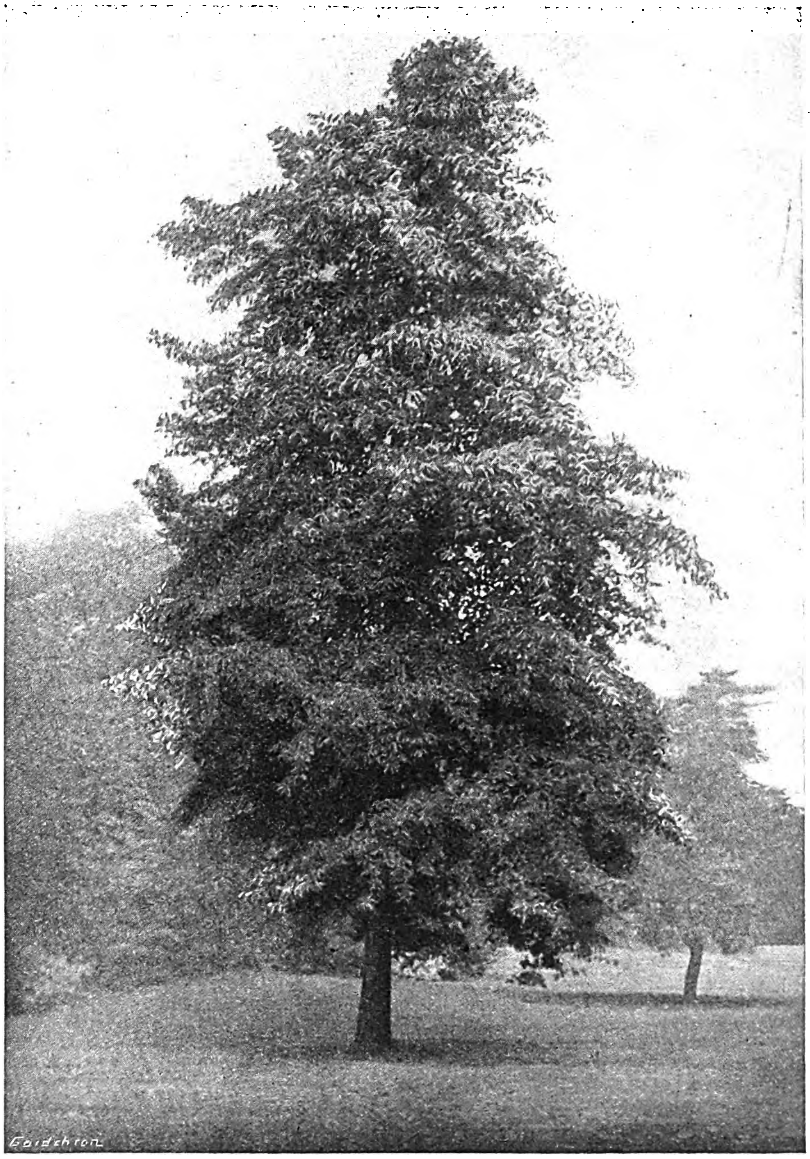

FIG. 205.—NYSSA SYLVATICA.

Small trees of N. sylvatica are listed for sale in several tree and shrub catalogues. Seedlings are obtained fairly readily from imported seeds, but they are by no means easy subjects to manage in the early stages of growth. Small trees in the nursery do not, as a rule, transplant readily, and the safest method would appear to be cultivation in pots and planting, when small, in the permanent positions.

Although considered to be moisture-loving trees, and rather associated in the States with swampy ground, in cultivation the trees thrive under much drier conditions. The tree illustrated is growing in the ordinary dry sandy loam of Kew. *A. Osborn.*

PRIMULA CRISPA.

Farrer, in *The English Rock Garden,* writes of this species: "the commonest garden plant called P. capitata," but no doubt this mistake is due to the fact that P. crispa has always been a scarce plant, and few have seen the two species growing together in gardens. Prof. Wright Smith, in his "Sections of the Genus Primula," places P. crispa in the section Denticulata, although it has a more general resemblance to the P. capitata we all know so well.

P. crispa has now been raised in quantity from seeds collected in Nepal. Flowers have been produced this autumn from seeds sown early in the year. At the Edinburgh Botanic Garden this species was making a nice display in early September, while in the south, plants in cold pits are still busy producing flower stems. It is probable that P. crispa will flower both in spring and autumn, and if so, it is, perhaps the only member of the section Denticulata that does this.

Its chief claim to distinction is that the flowers fill in early at the top and form a fine head of rich, deep purple bells, and one does not find the outer ring and flat head of unopened flowers usually seen in P. capitata. The whole head of flowers faces to one side, as in a garden Pansy, and this characteristic seems to make P. crispa a more effective and showy plant than the better-known P. capitata. The leaves are more like those of our old friend, bright green, serrated, and although there is no meal on them the head of flowers is well powdered with white farina. *T. Hay.*

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PROBLEMS OF PLANT LIFE.*

XIV.—Bogs and Bog Plants.

If we take the plant life of the cornfield and pasture land as normal for the herbaceous, and that of our copses and forests as the standard for shrubs and trees, it is clear if plants have the power to adapt themselves to other conditions, that the bog on the one hand, and the desert on the other, may be expected to present to us problems of the greatest interest. Since the term "bog," however, may be used in a variety of ways, and every land has its bog problems, we must limit our observations very largely to the bogs of our own country, and define a bog as a tract of country which is usually under water, largely destitute of useful humus, poorly supplied with the various salts, chemicals and foodstuffs upon which green plants depend, and compelled in consequence to protect its vegetable life on the one hand from a variety of ills and dangers, while on the other it has to adopt special devices to eke out or increase its supplies of plant nutriment. That is, the bog plants may need aid in shielding their organs from excessive moisture, may have to modify their structure, curtail expenditure, and seek other means of obtaining nitrogen and various necessary foods, than those which are in use among plants growing in deep humus and rich soil.

It may be remarked that in the north of England it is customary to call the bog a "moss," and as my personal knowledge of bogs has chiefly been acquired through long study of the "mosses" of Cumberland and the south of Scotland, the fascinating plant life which is found there will be regarded as the type upon which this study is based. Every botanist and student of plant life will remember how he was struck by the comparative paucity of green leaves, the lack of chlorophyl, the modified foliage, the meagre supply of roots, the means of attracting insects, of gathering or throwing off moisture, and a variety of other peculiarities which render bog plants particularly interesting.

Perhaps the point upon which the text books have chiefly insisted has been that which related to the so-called insectivorous plants, and the means they adopt to obtain the supply of nitrogen necessary for their healthy development. So attractive has this subject proved that many eminent naturalists have devoted long years to its study, thus rendering a detailed investigation here unnecessary. We must, however, call attention to a few of the plants. The different species of Sundew or Drosera are probably those which are most widely known. The English name has nothing to do with the sun, the first syllable being a Saxon term denoting endurance. Hence, it may be translated "everdew" on account of the endurance of the dewdrops exuded from the tentacles. These sticky exudations hold fast the insects which alight on the leaves, while they send messages far and wide to say a supply of nitrogen is at hand. With these may be compared the Drosophyllum, or Fly-catcher, found in Portugal and Morocco. Sundews are widely distributed.

Almost equally well known in the north of England, Scotland and elsewhere are the various species of Butterwort (Pinguicula), whose leaves have no tentacles, but a rich supply of glands which serve the same end. The insects which alight are eventually secured by the rolling in of the margins, and the juices utilised as food. In most foreign lands bog plants of many kinds are to be found which in one way or another capture similar prey, and a visit to Kew will well repay the student who would like to study the Pitcher Plants, Venus's Fly-traps, and other allied plants.

By no means rare in many parts of our own country are the curious Bladderworts (Utricularia), so called on account of the curious processes found growing on the aquatic leaves. These bladders capture such tiny creatures as Cyclops, Cypris and Daphnia, known as water-fleas, and Entomostraea, and so long ago as 1875 an article on this subject, by Mrs. Treat, of New Jersey, appeared in these columns as a reprint from the *New York Tribune*. The Bladderworts are widely spread. Kingsley found them long ago in the West Indies, Dr. Gardner in Brazil, while India, Malaya, and other lands have added their quota to our lists.

If we do not possess Side-saddle Plants, Pitcher Plants, and other similar fly-catchers, our bog flora is not without devices of a somewhat similar nature, since the Teazle is able to capture insects in the cup-like bases of the leaves. This modification of leaf-form reminds us of another peculiarity of bog plants, as illustrated by the beautiful Grass of Parnassus. In this case each flower-stalk has a single leaf which acts as a funnel for the collecting of dew or moisture, which it conducts down to the roots. These are few and not wide-spreading, so that the plant, if left without some such encouraging agent, might easily perish from drought. In connection with the Grass of Parnassus, attention should be drawn to the five large scales which alternate with the stamens, and have each some fourteen filaments tipped with a dewdrop. These recall those of the Sundew, and seem to be very attractive to insects, although they are not viscid or injurious.

Another series of plants which have been modified to meet the peculiar needs of the bog are the obscure Charas and Nitellas. In 1774, a botanist named Corti drew attention to a curious phenomenon which he had observed in Chara, which has since been spoken of as gyration, cyclosis or rotation. Under a low power of the microscope an intracellular movement was seen to be going on in the plant, the direction being more or less spiral and limited to individual cells. Balfour remarks that in Chara the axis of the plant is composed of elongated cells placed end to end, surrounded by a number of secondary cells which take a spiral course round the primary cells from left to right. Another peculiarity of this group of plants is that they are encrusted with carbonate of lime which makes them very brittle and causes them to feel harsh, in sharp contrast to the Butterworts and other plants growing near them.

To enable them to throw off excessive moisture the bog plants have evolved a number of different devices in harmony with their individual habits and nature. In some cases the leaves are particularly smooth or unctuous, while in others they are placed at a convenient angle. Sometimes, on the contrary, they are hairy, and this hairiness may be found not on leaves and stems merely, but in the various parts of the blossom. Of special interest are such plants as the Bog Bean and the Bog Pimpernel. These various modifications are eloquent testimony to the fertility of Nature, and show how exquisitely life in its fulness and at its best can meet the demands which are made upon it. They remind us that in quite another direction we may find other tokens of adaptation, as in the resinous glands and waxy secretion of the Sweet Gale, which is often so abundant in boggy places, and the mealiness of the Bird's-eye and Scottish Primroses.

Since we are chiefly concerned with flowering plants, and particularly those which are suitable for a bog garden, we can do no more than mention here the various Rushes, Sedges, Grasses and Mosses which supply the cryptogamist with such unlimited material for study, and the Diatoms, Desmids and Algae which are equally fascinating to the microscopist.

One of the characteristics of typical land plants is the size, colour, texture and stomata richness of the foliage. Looking out upon a garden, meadow or copse, one cannot fail to be impressed with the difference which these present to the eye compared with that of a typical bog. The green of the former gives place to brown and red. Leaves of bog plants are few, small, much segmented, and poorly supplied with stomata. Owing to their environment they function differently, and this different mode of acting shows itself in their structure. If any special work has been done on the stomata of bog plants generally in relation to their life-problems, I have not had the good fortune to meet with it.

Thus far, the treatment of this subject has been entirely of a popular character, with an intentional avoidance of technicalities. Since it might be thought by some, however, that the real problems connected with bogs and bog plants have been avoided, I ought in conclusion to allude to one or two. There is, for example, the question of how plants are to flourish where there is a lack of soil for the roots, an excess of fibrous material such as Sphagnum-moss or peat produces, a deficiency of nitrogenous material of the kind supplied by manures, and the superabundance of acids and toxins. To the foregoing must be added the problems relating to temperature, which, on reflection, will be seen to be serious. Although these problems have been the subject to careful investigation for the past forty years, the researches have been chiefly conducted on foreign soil, and many of the conclusions have only a limited bearing on the questions which perplex the British botanist and gardener. We have learned how to plant bog gardens and obtain satisfactory results, but thus far little has been done in this country to elucidate the subject from the physiological standpoint. Those who may desire some guidance in this direction may be referred to Dr. Yapp's translation of Maximov's work on *The Plant in Relation to Water* (Allen and Unwin, 1929), especially chapter iii and the Bibliography. *Hilderic Friend.*

A WONDERFUL WISTARIA.

Possibly the most wonderful Wistaria in the world is to be found at Ushijima, near the village of Kasukabe, in Japan, an hour's train ride from Tokyo. Tradition states that it was planted over a thousand years ago by the famous priest, Kobo Daishi. Although one cannot place much faith in Japanese traditions, this Wistaria is undoubtedly of very great age. According to the official measurements, the circumference of the much-divided trunk is thirty-two feet and, judging by eye alone, this appears to be approximately correct. The branches are trained over a trellis (Fig. 206) and cover a rectangular piece of ground about four hundred square yards, the longest side being approximately thirty-five yards.

At the time of my visit, the whole of this trellised area was more or less uniformly and closely hung with long racemes of lilac-blue blossom, and formed a truly wonderful sight. Looking upward, one could see nothing but a solid mass of pendant flowers, swaying gently in the summer breeze, the whole being flecked with shadows from the sunlight that filtered through.

The species is Wistaria multijuga, and has exceptionally long racemes. These are stated to be sometimes so much as seven feet in length, but the one I measured was only about four feet. I estimated that the plant carried at least 80,000 sprays of blossom. *Collingwood Ingram, Benenden, Kent.*

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* Previous studies appeared in our issues of April 13 (p. 279), June 15 (p. 446), Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71), August 17 (p. 130), September 7 (p. 187), September 14 (p. 207), September 28 (p. 247), October 5 (p. 268), October 12 (p. 288), November 2 (p. 346), and November 23 (p. 406).

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXVII.—The Plains Again.

It took me a fortnight to prepare my seeds and specimens for the journey to England. The seeds were dispatched by letter post, in thermos flasks and air-tight tins, as quickly as possible. Meanwhile, the weather continued bad, and although we did not have much rain in Sadiya itself, the Mishmi Hills were completely blacked out, and did not appear until after the middle of November; by that time the snow was down to 9,000 feet, and our late camp was, therefore, snowed under.

While marking time in Sadiya we had an afternoon's fishing in the Dibang river, at Deopani Muk (*i.e.*, the point where the Deopani flows into the Dibang), a well-known angler's delight. At the third cast, fishing with a silvered spoon, I hooked a monster, and after one hour and twenty minutes landed a mahseer weighing 50 lbs.—the biggest fish caught in the district for a long time. Beginner's luck!

There were several interesting sub-tropical plants in flower on the plain, including a species of Desmodium, and another Leguminous plant, a climbing Convolvulaceous species, and a handsome violet-flowered herb rather like an Osbeckia. The Desmodium was a small, rounded, compact shrub, about six feet high, growing on the open plain, among tall meadow grasses; it had purple flowers, and leaves coated with long, silky, glistening, silver hairs. Happily there were ripe fruits as well.

On the chapri—islands which are formed in the beds of the big rivers—grew a small underahrub Papilionate, with bright blue flowers. These are rather undersized, and lonely; but if the plant could be persuaded to bear a crop of flowers all together it would make quite a good show. It also bore seeds as well as flowers.

All up the front of the bungalow scrambled a plant with Fern-like foliage and a host of tubular flowers which might have been cut out of dark red plush; these opened in daylight, when the air had warmed up a bit, and closed at night, or when it rained. I never saw the plant growing wild, but was told that it came from the Nowgong district of Assam, some distance down the Brahmaputra valley, where it grew on the edge of the jungle. Some plants had been brought to Sadiya and stuck in the ground, and had flourished. I secured seeds of this pretty cool-house plant.

Finally, there was the Obeckia-like Melastomaceous plant, which grew scattered over the open grassland. The deepest colour forms, with violet petals and bright yellow stamens, were most attractive. The species grows about two feet high—just the single main stem with virgate, axillary pedicels, each ending stiffly in a flower; and the whole thing then withers up in the hot weather, the perennial rootstock sending up a new stem in the following cold weather. This, too, yielded ripe seeds—the seeds are minute and orange-brown in colour, rather like Tobacco seeds in appearance.

We had been in Sadiya less than a week when Buttercup had to leave me to catch his boat in Calcutta; he was wanted at home, and, moreover, there was no doubt that he needed a change of climate. Nevertheless, it was with a heavy heart that I went across the Lohit to see him into his train at Saikhoa Ghat. We had been together through eight trying months, and it would be impossible to do justice to his loyalty, and unselfishness. He was the ideal companion; and only those who have been thrown for any length of time into the society of one man will know what it means when I say that in the whole of that eight months, during which we saw no other white man, we never exchanged an angry word. A week later the party was further decimated (can you decimate a trio ?) by the departure of Luso, who was wanted in Bombay to meet the Roosevelt expedition; I alone now remained of the original Mishmi Hills expedition. Luso, indeed, had been with me just a year, first in the Naga and Abor Hills, then in the Mishmi Hills. In his place I took on a temporary cook-bearer, notorious all over the Sadiya district, known as Suffering John. He had been with every political officer, forest officer and military officer on the frontier for the past fifteen years, because no officer had ever been known to keep him more than three months. He was quite a good cook, and an excellent fellow in camp; but he had one besetting sin—some of us have, sometimes. So soon as he got back to Sadiya from tour, he got drunk; not for the evening, not even for a night, or two, but for a week or a fortnight. And so he wandered from one sahib to another, acting as locum for anybody who was temporarily disabled; he was almost always out of a job, and when he found that I was going to be servantless, he bobbed up from the bazaar one day, before Luso departed, acquainted himself with some of my foibles, and offered his services. So I took him on. Meanwhile, I myself had made no plans; the only certain thing was that until all the recent collection was safely disposed of, I would have to remain in Sadiya. It was my intention, however, to visit Nizamghat and the Abor Hills between the

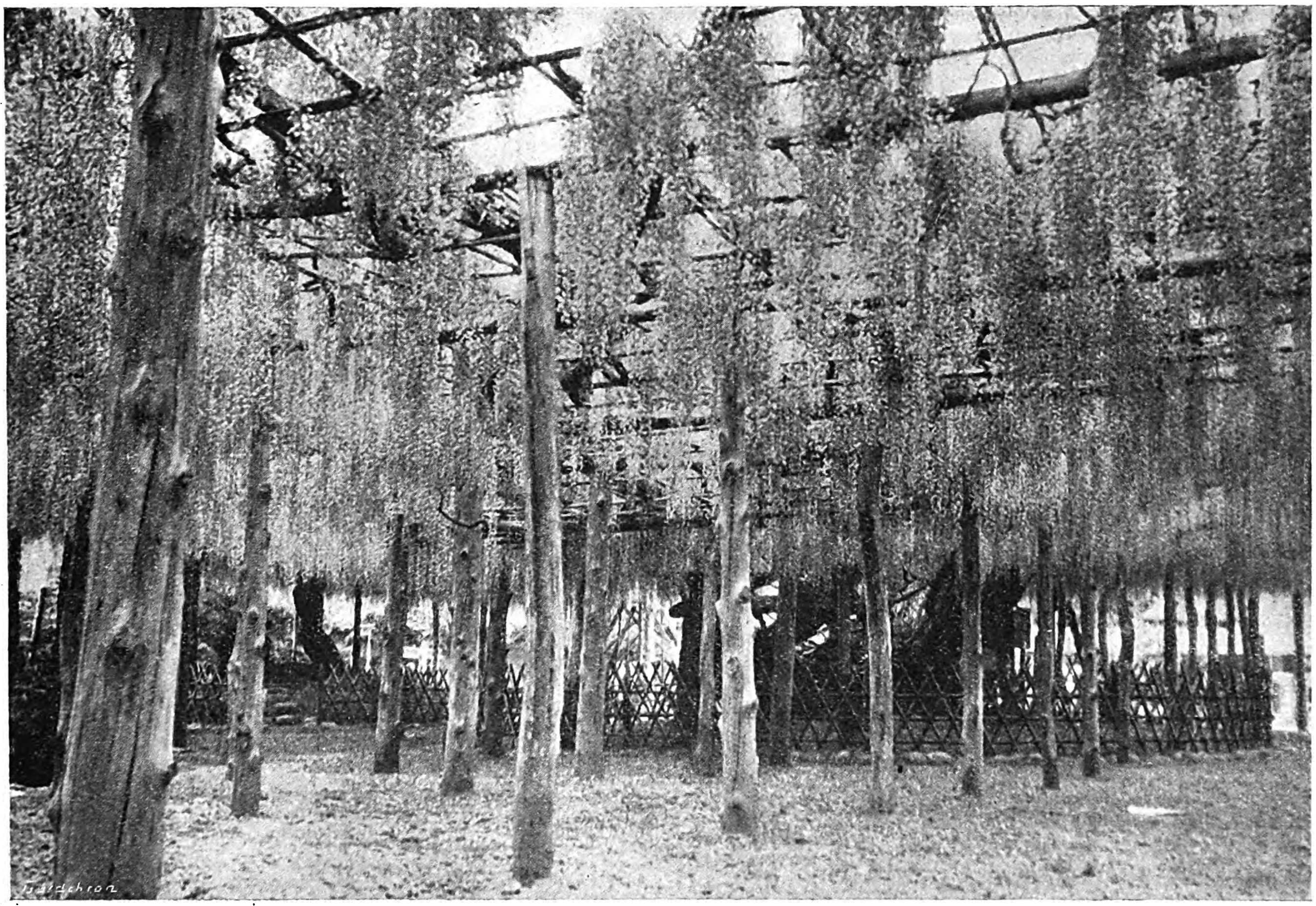

FIG. 206.—AN ELEVEN-HUNDRED-YEARS-OLD WISTARIA, IN JAPAN.

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 16, 28; October 12. 26; November 9 23 and 30 1929.

Dibang and Dihang rivers, before leaving the district.

One day I went out with the forest officer to see a regeneration area of Holok (Terminalia myriocarpa). This is the most valuable timber tree in the district, and is being extensively planted. It is quite a common tree, but usually grows scattered; occasionally it is almost gregarious. However, it is so much sought after by the saw-mills, that unless steps are taken it will be exterminated in a few years.

The nursery we visited covered about thirty acres, and was being planted up at the rate of five acres a year; but there are much larger nurseries in other parts of the frontier tract. The procedure is as follows. The jungle is felled and burnt in January, the ground cleared and the seeds sown broadcast. The young plants come up thickly, and grow rapidly, the heavy shade choking out all weeds. Weaklings are cut out periodically. Every five years the trees are measured, and the suppressed ones felled. The oldest trees I saw were seven years, and averaged fifty feet high and six inches in diameter at four-and-a-half feet from the ground. Terminalia myriocarpa flowers in October on the Sadiya plain, bearing billows of cream flowers like clouds of Spiraea; it is even more beautiful in November, when the whole tree is loaded with glowing red bunches of winged fruits. Another tree which is being planted, although on a smaller scale, is the Indian Mulberry, Morus laevigata. It has beautiful wood, much used locally for making canoe paddles.

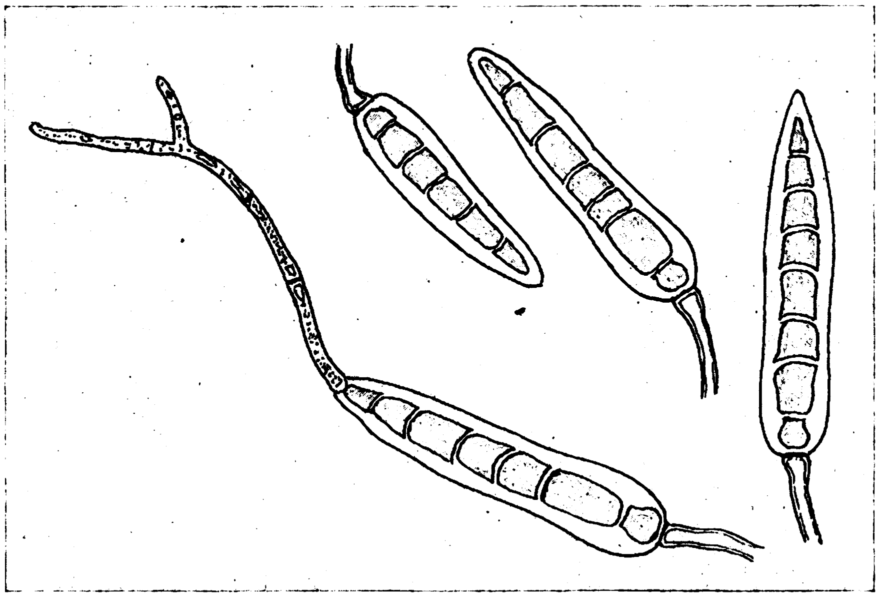

FIG. 207.—SPORES OF CERCOSPORA MELONIS.

(Highly magnified.)

After November 20, the fine weather set in properly; and then, of course, it seemed foolish to leave Assam until the beginning of the hot weather, in March, at any rate. The work which tied me to Sadiya was almost finished, and I began to make plans for a short expedition, lasting, say, two months or so.

We had very heavy mists at night, but usually these were precipitated as dew before morning, and the water dripped like heavy rain from the trees. Dawn, on such mornings, was wonderful. The red sun bulged suddenly up over the hard rim of the plain like a bursting tyre, and bathed the thin mist in a golden wash. The sky changed in a few minutes from pearl-white to pale blue, and the grass glittered with jewels. Then the last shreds of mist were lapped up, the sun gained power, and the growing heat sucked the dew from the trees. A few puffs of cloud came to rest on the blue frontier mountains; and in the brilliant mid-day light, you could count the ranges, which rose one behind the other to the snow-glazed peaks of the Tibetan frontier.

A friend lent me a car while I was in Sadiya, and I drove along the few roads there are. They are only dirt roads, of course, and the car was a marvellous crock—although it went all right when you once started it. That was the difficulty—starting it. You had to hitch up valves with bits of wire, turn the handle, unhitch valves, stamp on everything at once, and turn the handle again, before she would think of going. And the steering wheel! It revolved before your eyes, and if you were not ready for it, landed you in the ditch—for all the roads are raised bunds, with a camber like a railway arch. However, once I got the hang of it I found the car very useful for short botanical journeys into the jungle in the neighbourhood.

After the thrills of botanising in a virgin field, however, there is not much on the Sadiya plain to intrigue the collector. The forest flora of Upper Assam is very much the forest flora of Bengal or of the Duars; and it has been pretty thoroughly explored, from the time of Griffith in the eighteen-thirties to the present day, when forest officers traverse the whole province—or rather, the exploitable part of it. True, the proletariat of plant life—the Mosses, Lichens, Liverworts, Algae and Fungi might yield a harvest of novelties; but botanical collectors always seem to be a little bit shy of these poor relations. In general terms, however, the botanical work to be done in a country like Assam is of a different order—research, observation, and experiment on the known raw material, rather than exploration; work calling for intellectual powers rather than for qualities of endurance.

Still, there is no Flora of Assam yet; and although a retired forest officer had devoted seven years to the preparation of such a work, he has since died, and the whole project has been hung up. From the forest officer's point of view, the materials for a provincial flora probably exist; but from the botanist's point of view, a vast amount of exploration along the frontier ranges needs to be done before such a work could be made anything like complete. At present no more than the plains and the foothills have been touched; and since forest officers are, publicly at least, interested only in "wooden" plants, and the majority of them only in the timber trees among these, much collecting remains to be done among the smaller fry, even on the plains. *F. Kingdon Ward.*

NOTICES OF BOOKS.

Pomologi Beskrivngar över de Viktigaste I sverige odlade Fruktsorterna.

Professor Dahl is well-known as an expert pomologist, and a volume from his hand is, therefore, a welcome event. The present work[*] deals with Apples and Pears, and it is, one presumes, the forerunner of a series dealing with all fruits which can be grown in Sweden.

The reviewer must state at once that he is not able to read Swedish, but, even without this, some facts of interest may be gained from a glance through this well-printed volume and its excellent coloured plates. As to the arrangement, the author follows the course of a full description as established by such great authorities as Mas and Leroy, and references are given to the works of previous authors. A good outline drawing accompanies each description, showing the internal details, core, tube, stem, etc.

The plates follow at the end of the book, and although numbered to twenty-six only, they are each of two pages, and often illustrate four or five varieties, so there are some one-hundred-and-four coloured figures. The colouring and drawing are very good, and in the Apples especially great pains have been taken to render as far as possible the different tones of red and yellow which mean so much to the experienced eye. For instance, Red Astrachan reproduces its natural colour most effectively, and the light bloom is also deftly suggested. The pale creamy-yellow of White Transparent or Lord Grosvenor is skilfully differentiated from the more lemon-yellow of Lord Suffield.

Perhaps the part of greatest interest for the non-Swedish reader is the origin of the various fruits described, and here I am confirmed in my view that the best all-round fruits have also the widest range of climatic endurance. Of our British varieties which are at home in the Swedish climate is found the irrepressible Bramley's Seedling and its opposite dessert number, the Worcester Pearmain. Lords Suffield and Grosvenor, although of British origin, are of Russian blood; and I am not therefore surprised to find them also figuring well. The American Wealthy, well-known to be very hardy, is in the collection, as are Melon Apple and Rhode Island Greening. The last-named seldom reaches perfection in my experience in this country, and it would seem that more sun can be relied upon in Sweden than the usual British allowance.

As would be expected, many German Apples figure in the collection, and among the native Swedish varieties Gravenstein and Akero are well-known to us in England.

Turning to the Pears, we find the French and Flemish varieties which have for a hundred years been the standard varieties of western Europe predominating. Williams's Bon Chretien and Conference from this country apparently thrive, as do some of the American varieties, such as Clapp's Favourite, Hodge and Seckle.

It is interesting to see a good figure, the first, I believe, of the Pear named Moltke, which was shown at the recent R.H.S. Fruit Show, and to learn that its name commemorates a Danish Minister of State, and not the better-known German strategist. This Pear has many garden merits, good habit, free crop, and the flavour is also good, so that it may ere long be added to our list of October Pears.

Up to the present, the only Swedish work which was available was the *Svensk Pomona*, of Eneroth, published in 1864-66. The plates of this work are very poor and badly drawn. Professor Dahl's work thus comes as a valuable addition to our reference works, and will be welcomed by students of systematic pomology. *E. A. B.*

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[*] *Pomologi: Äpplen och Päron*, Vol. I. By Carl G. Dahl, Stockholm: Albert Bonniers Förlag. 424 pages, 26 coloured plates. Price £4.

A German Cyclopedia of Hardy Plants.*

The first two volumes of a new cyclopedia of hardy plants, by the well-known German horticultural writer, H. R. Wehrhahn, have just been published by the Berlin firm of Paul Parey. The book is stated by the publishers to be intended for gardeners, trade growers, garden lovers, students and designers; and, indeed, its scope is wide enough to embrace all these classes of people, to whom, doubtless, a complete list of the hardy plants now known and cultivated in the northern hemisphere is bound to be of service. In view of the enormous developments which have taken place in this realm of gardening in the last quarter-of-a-century, and especially since the war, to undertake so formidable a task required considerable courage, to say nothing of a large and varied experience, coupled with accurate and extensive botanical knowledge. If, in such a work, absolute accuracy is not to be found, this is but to admit that author and printers are human; and there is much which can be sincerely written in praise of the work so far as it has gone. Efforts have been made, attended by a considerable measure of success, to bring the information right up to date, and to include as many as possible of the most recent specific and varietal introductions; the matter is written succintly, and the photographs excellently taken and reproduced in first-class style. To the busy reader, however, the book has one fatal defect: that the species and varieties are not given in alphabetical order. Doubtless, when the book is completed, there will be alphabetical indices, but we greatly prefer the system adopted by L. H. Bailey, in his *Standard Cyclopedia of Horticulture*, of giving for reference, at the top of every generic section, a complete alphabetical list of all species and varieties in the genus. Purely descriptive matter is, perhaps, best grouped otherwise, untrammeled by a rigid system of initial letters; but for rapid reference, nothing equals alphabetical arrangement. Furthermore, the method adopted, by enabling the reader easily to "run down" a plant of which he is desirous of ascertaining the name, although ingenious, would not, we think, appeal to everyone as being particularly simple; and as the purely botanical descriptions must necessarily be supplemented by fuller information, the botanical notes, being separately grouped, tend rather to take extra space than to save it. We venture to think that for purposes of rapid and accurate identification, a small, but clear, drawing of each important species is the best method, especially in a work avowedly intended to be useful to readers who have not the advantage of very advanced botanical knowledge.

The illustrations, although excellent in themselves, are somewhat partial, and in some cases inexplicably large, occupying considerably more space than the importance of their subjects would appear to justify. For instance, Muscari Aucheri var. praecox occupies a whole page, and M. botryoides nearly half; Galanthus has three illustrations devoted to it, even Galtonia has one, but there is none of the large Asparagus genus, and none of Calochortus.

The book is arranged by families, beginning with Typhaceae. On page 30, the Liliaceous family begins, and occupies nearly 160 pages, so it will be seen that adequate space is devoted to each section. The work is to be completed in about ten parts, which, if all about the same size as the first two, will comprise together something like a thousand pages. When the index makes its appearance, and the separate parts can be bound in a convenient form (as they are now, wrapped in paper, they drop to pieces by the sheer weight of the art paper they are printed on) the work will take its rightful place on the horticultural bookshelf as a painstaking, serviceable volume, which will probably rank for many years to come as the best reference book on the subject of hardy plants. Few authors expect, fewer still attain to, a higher ambition than this.

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* *Die Gartenstanden*, by Von. H. R. Wehrhahn. Vols. 1 and 2 (to be completed in about 10 volumes). Berlin: Paul Parey. Price per vol., R.M., 5·20.

CERCOSPORA LEAF SPOT ON CUCUMBERS.

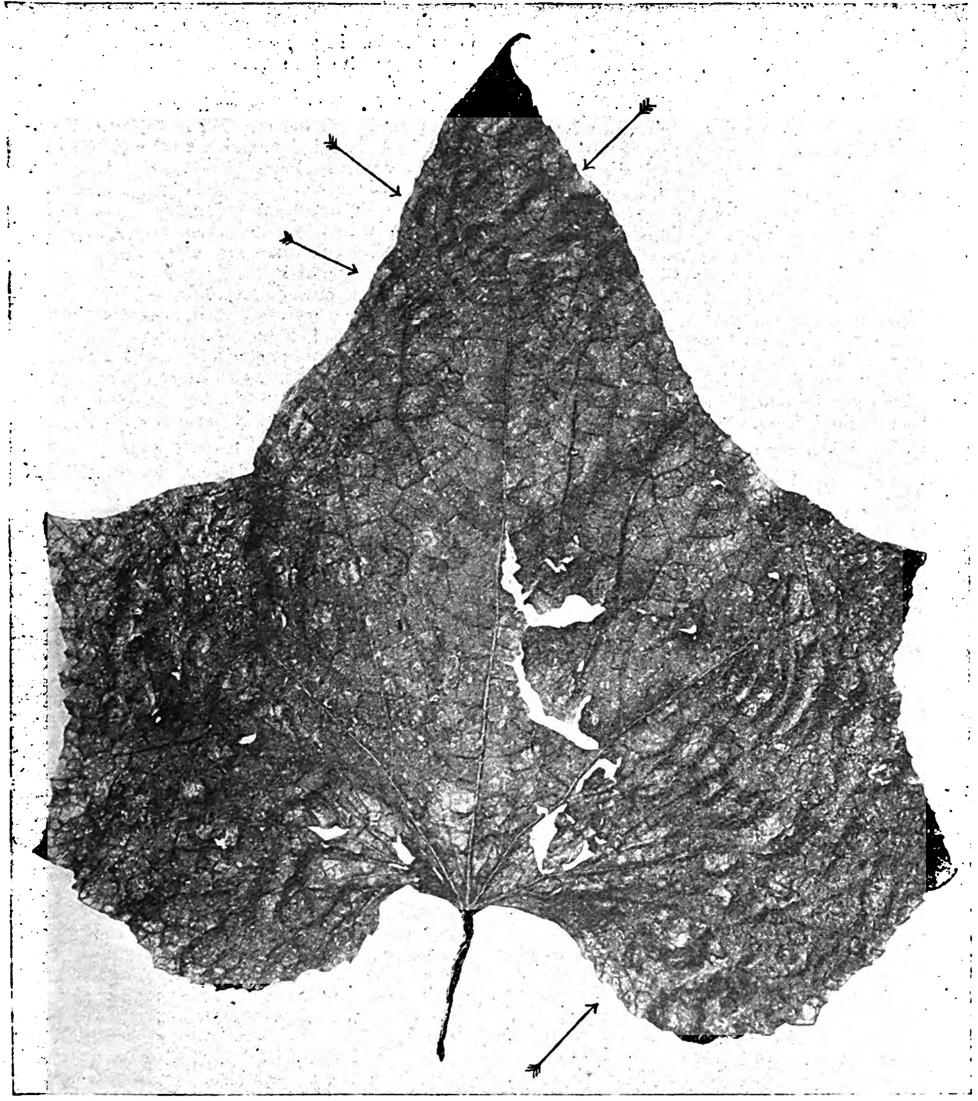

FIG. 208.—CERCOSPORA LEAF SPOT OF CUCUMBERS.

Diseased leaf showing water-soaked and brown spots.

THE disease attacking Cucumber and Melon plants caused by Cercospora melonis is, fortunately, rare in this country at the present time. From 1896 up to about 1907 it caused considerable destruction in certain districts, but the introduction of the variety Butcher's Disease Resister, which is immune to this disease, together with certain precautions in culture, succeeded in checking the spread of the disease. Since that time very few observations of the disease have been recorded, and it was considered to have almost entirely disappeared. During this year, however, there have been several records of the trouble, and it is important that anyone growing Cucumbers or Melons should constantly watch for symptoms of this malady so as to avoid further epidemic outbreaks.

Once infection has occurred in a house the affected plants go off with great rapidity, and it is but a matter of days before the entire crop may be destroyed. The first symptom of disease is the appearance of small, pale, water-soaked spots on the upper surface of the leaves, which increase in size and number, often coalescing, turning grey, and finally brown in colour. The shape is irregular, but the outline quite definite (Fig. 208). Leaves so affected rapidly wither. Microscopic examination of the spots shows the upper surface to be covered with the filaments and spores of the fungus. The latter are comparatively large, cylindrical bodies, narrowed at one end, usually having seven transverse walls, but occasionally so many as eleven of the latter have been observed. By means of these spores infection spreads rapidly—they are blown about and their dissemination is hastened by insects and also by necessary handling of the plants during cultural operations. Healthy leaves are infected by means of the germ-tube produced from the narrow end as shown in Fig. 207.

Rapidly-growing plants are, of course, extremely susceptible, and conditions of high temperature and humidity aggravate the trouble. Control, therefore, depends mainly upon judicious ventilation to regulate the humidity of the atmosphere, and on the most careful use of nitrogenous manures. Diseased leaves remain potential sources of infection, and should be carefully removed and burnt. Prompt spraying of slightly diseased plants with liver of sulphur is recommended as a means of control. When the crop is severely affected and it is decided to burn all the plants, thorough precautions should be taken to ensure that the disease shall not appear again. Every part of the house should be sprayed with some solution capable of destroying the fungus spores. In addition, the soil should be sterilised by some method or other; if the quantity to be treated is not too large the formalin method is probably the most effective. Descriptions of washes to be used and methods of application can be best obtained by consulting Dr. Bewley's book on *Diseases of Glasshouse Plants*. *D. E. Green, M. Sc., Wisley.*

THE GENUS PRIMULA.

(*Continued from p.* 429.)

SUFFRUTESCENS (A. Gray). Shrubby P.
(Cuneifolia).

A BEAUTIFUL, evergreen, sub-shrubby perennial sub-species of P. cuneifolia (Ledeb.), with woody, branching stems which creep on the surface of the soil. The leathery leaves are produced in dense tufts or rosettes at the ends of the branches, and have wedge-shaped blades, blunt at the tip, tapering at the base into winged stalks, in all one inch to three inches long; margins towards the upper half of the leaf furnished with four to seven sharp teeth; both surfaces more or less smooth and non-mealy. Flower stems two to five inches tall, bearing an umbel of two to six erect, pink or reddish-purple blossoms with a yellow eye, on stalks about half-an-inch long. Corolla about one inch to one-and-a-quarter inch across, divided into five egg-shaped, deeply cleft, shallowly-bifid lobes; tube cylindrical below, dilated upwards, longer than the calyx. Flowers in June and July. Introduced in 1884. *Gard. Chron.*, 1912, Vol. LII, p. 226, Fig. 99.

Grows in exposed situations on rocky slopes in the Sierra Nevada of California at 9,000 to 10,500 feet above sea-level.

Culture: Grow it in good friable loam and peat in a well-drained, half-shady spot, with underground moisture and protection from wet in winter by a pane of glass overhead.

SULPHUREA (Craib). Sulphur P.
(Petiolaris-Sonchifolia).

A dwarf, tufted, perennial species with broadly oval or egg-shaped, almost stalkless leaves from one inch to two inches long; margins furnished with fine teeth; upper surface more or less smooth, underside densely coated with sulphur-coloured meal. Flower stem very short or quite wanting. Flowers fairly numerous, borne on stalks half- to three-quarters-of-an-inch long, springing from the short flower stem or crown of the plant. Corolla about half-an-inch across, probably pale purple, with broadly heart-shaped, entire or lacerated lobes. Flowers in February. Not in cultivation.

Grows in damp, rocky soil on the Kumaon Himalayas, at Suring, at about 4,500 feet above sea-level.

Culture: As for P. petiolaris.

SYLVICOLA (Hutch.). Sylvan P.
(Cortusoides).

This beautiful sub-species of P. cinerascens (Fr.) which is best treated as a biennial in cultivation, is very closely related to P. sinomollis (Balf. f.). It has a somewhat fleshy rootstock which produces sparse tufts of thin, spreading and drooping leaves, with oblong-elliptic blades six to eight inches long, rounded at the tip, heart-shaped at the base, borne on hairy stalks from four to six inches long; margins cut into small lobes which are minutely toothed; both surfaces finely downy, nerves hairy on the underside. Flower stems numerous, fifteen to twenty-four inches tall, downy, bearing six to seventeen superposed umbels of six to nine, rose-purple, fragrant blossoms with a yellow eye, on downy stalks about one-and-a-quarter inch long. Corolla about three-quarters-of-an-inch across, divided into five spreading or slightly recurved, broadly egg-shaped-oval, widely-notched lobes; tube cylindrical. Flowers from April to June. Introduced in 1913. *Gard. Chron.*, 1916, Vol. LIX, p. 318, Fig. 139.

Grows in sheltered, shady places on the margins of thickets, etc., in Yunnan, at 6,000 to 8,000 feet above sea-level.

Culture: Good, rich, somewhat heavy loam and leaf-soil in a cool, shady spot, with protection from damp and severe frost in winter, should suit it.

SZECHUANICA (Pax). Szechuan P.
(Nivales).

A smooth, deciduous, non-mealy perennial species with a tuft or rosette of thin, membranous leaves two to three inches long and three-quarters-of-an-inch to one inch wide, with oval or oblong-oval, pointed blades gradually narrowed into a winged stalk as long, or shorter than, the blade. Flower stem stout, six to ten inches tall, bearing an umbel of six to ten violet or yellow blossoms. Corolla about three-quarters-of-an-inch across, with oval, reflexed, entire lobes; tube about three-eighths-of-an-inch long, dilated at the throat, about as long as the calyx. Flowers in June and July.

Grows in damp alpine pastures and on the margins of thickets, near Tatsienlu, in western Szechuan, western China, at 9,000 to 13,000 feet above sea-level.

There is a robust, unnamed form, from south-eastern Tibet, with flower stems up to three feet tall, bearing one to three superposed umbels of pale yellow, fragrant flowers.

Culture: As for P. Maximowiczii.

TALIENSIS (Forrest). Tali P.
(Petiolaris-Sonchifolia).

A beautiful dwarf species with the whole of its foliage, stems and calyces covered with short, stiff hairs. The egg-shaped-spathulate leaves, produced in tufts, are from one to one-and-a-half inch long, and taper at the base into a broadly winged stalk; margins furnished with deeply-cut, irregular, saw-like teeth. Flower stem stout, one inch to three inches tall, bearing an umbel of two to six white or pale blue, yellow-throated blossoms, on stalks half- to three-quarters-of-an-inch long. Corolla slightly concave, about three-quarters-of-an-inch across, with broadly egg-shaped lobes, trilobed at the tip; tube cylindrical below, dilated upwards, about half-an-inch long. Flowers in September.

Grows in moist, open, stony pastures on the eastern flanks of the Tali range, and in similar situations on the mountains of the Shiveli-Salween divide, in Yunnan, western China, at 10,000 to 11,000 feet above sea-level.

Culture: Good, friable, gritty loam, in a moist, open spot, with protection from damp in winter, should prove suitable. *A. W. Darnell.*

(*To be continued*).

HOME CORRESPONDENCE.

Basket Begonias.—Wire baskets filled with suitable plants are often used and valued when suspended for adorning glass structures. Among many subjects suitable for this purpose, trailing Begonias are worthy of special note. The following varieties did well with me during the past summer: Fleur de Chrysanthemum, Lena, Gladys and Mrs. Bilkeny. The first-named is very free-flowering, with pale pink blooms and, perhaps, a better bushy habit than the other varieties mentioned. Lena and Gladys carry blooms of a crimson shade, the former slightly darker than the latter. The flowers of Mrs. Bilkeny may be described as of an apricot shade—they never fail to call forth comments of praise. The growth of this variety is stronger than that of any of the other sorts, with correspondingly slightly larger foliage. Young plants give the best results, although occasionally old roots persist awhile and give excellent displays. Propagation of new stock is by cuttings and is not difficult. *C. Turner.*

The Need of Education for Gardeners.—I am sure our Managing Editor will allow me to recall that in the dear old *Gardeners' Magazine* of nearly forty years ago, when he was an aspiring young sub-editor and I was an aspiring young writer, I brought this matter up time and again, urging, among other things, examinations which tested practical as well as theoretical knowledge. I did not, and do not now, dispute that there are many cases of under-payment; but I maintained that the young gardener who made a point of mastering his craft, and at the same time keeping abreast of scientific progress, would in most cases get a satisfactory reward. It is "forty years on" and what do I see? A hundred good posts where in the old days there was scarcely one; public authorities vying with each other to make beautiful parks and gardens, with—*ipso facto*—posts for intelligent and well-informed gardeners; school gardens and demonstration allotments in every county, with openings for instructors; research stations steadily multiplying. And remember, this is not finality. It is, indeed, little more than a beginning. Mr. Good's letter, on page 411, is admirable, but where he states "very necessary" in connection with the study of botany, etc., I would use "very desirable," because I think that many young fellows are apt to think they can do nothing worth doing without outside help. They are wrong; they can do a great deal. At the least, by reading they can put themselves in the way of being able to take swift advantage of tuition when the chance of getting it comes. Kerner and Oliver's *Natural History of Plants* remains a gold mine still unexhausted. De Vries's *Species and Varieties* is as fascinating as ever. Two invaluable small books are the late W. Bateson's *Methods and Scope of Genetics*, and Sir Frederick Keeble's *Plant Life*. The latter has given me many hours of delightful reading and re-reading. It is packed with information and written in that suggestive, imaginative and stimulating style of which Sir Frederick is the envied master. And I positively must mention Mason and Dow's *Rural Science* because of its value in pointing out simple experiments. These books are but a few of many which open up avenues of pleasant and fruitful study. And may one who has reached the veteran stage, and perforce gone into retirement, add that good as the old times were, the present are still better? Never was life so full of zest, so rich in opportunity, as now. Never was gardening in particular so fertile in promise as it is to-day. *W. P. Wright.*

—— I note, in your issue for October 26 and November 9, respectively, articles on "The Need of Education for Gardeners." In thirty years' experience, I have met gardeners of various ages and experience who had not gained one degree of knowledge from study, but who were, and are, some of the best workers and gardeners in the country. The best education any young man can obtain to fit him for a good post is to fill a situation under a good all-round gardener in a good establishment, as an apprentice, improver, journeyman and foreman, say, three years in each capacity in various establishments. He will then, without a doubt, be qualified to fill a head situation. In many gardens digging, brick-carting, wood chopping, etc., are included in the gardener's work, and such establishments have been the means of discouraging many a young man who has been unfortunate in falling into the trap of misrepresentation. For myself, I was fortunate in getting a fairly good education. I served my terms in gardening as mentioned. I kept a diary of work done for three years; this improved my handwriting, and I also made a point of study at various times. But I discovered too much learning would have made me mad, and all work and no play made me a dull boy. I bought *The Gardeners' Chronicle* for 3d., and *The Garden* for 2d. before 1914, so I fail to understand how they cost Mr. Cuthbertson's friend 1s. per week, if his friend bought them before 1914. I quite agree with Mr. Cuthbertson that the old order of things has changed, but not to improve the gardener's lot. No gardener, through study or education alone, will ever fathom the practical side of horticulture. *Thomas William Mead, Hylands Park Gardens, nr. Chelmsford, Essex.*

Spanish Gardens.—In your appreciative review of *Spanish Gardens*, in your issue of November 16, I notice your critic doubts "if the beautifying of the earth with trees and flowers makes any appeal to the Spaniard, or even to the authoress of this book." As the requirements of the irrigated garden are so foreign to garden-lovers accustomed to our rainy climate, may I quote a passage from my book in answer to your critic's question.—"It has been said that Spanish gardens are curiously lacking in the colour of flowers; that green is their predominating note. Green is certainly a favourite Spanish colour, and this is not to be wondered at in the brown arid country of the central plateau, where the parterres of Aranjuez and the Escorial are filled with endless geometric complications of clipped Box. But the Moors of Andalucia, much as they valued green for their turbans, had other ideas for their gardens. The deep purple blue of the Iris, *azul*, was the colour of Moslem Spain. Azure and sage-green, turquoise and white, their cool, delicious colour scheme, can still be seen each April in the Secano (of the Alhambra) when the Irises are in bloom." *Constance M. Villiers-Stuart, Beachamwell Hall, Swaffham, Norfolk.*

Odontospermum maritimum.—This old plant, which has been in cultivation for three hundred years, has received a good deal of notice lately in *The Gardeners' Chronicle*, and if it does not deserve to be classed among the elect, it has some valuable attributes. I used to grow it years ago as Asteriscus maritimus, and have always found it one of the best of drought-resisters, and a most persistent flowering subject from spring to late autumn. A week or so ago, a clump was still ablaze with its golden Daisy flowers, even although we had had sufficient frost to put all its late-flowering companions out of bloom. That plant had never been a day without a mass of blossom since May, and that during one of the most trying summer on record. O. maritimum varies a good deal in stature, six inches being, perhaps, the average height attained by the upright flower stalks. The latter, like the close tuft of woolly, grey leaves, rise from a woody base which seems to be able to withstand severe frost provided the root-hold is dry and stony. The plant sometimes called O. m. var. littoralis, which one may come across on the limestone in parts of southern France, does not appear to differ in any important particulars from the form commonly grown and which is a native of more easterly regions of the Mediterranean. *North Wales.*

Lonicera nitida.—Inasmuch as nurserymen have in many cases raised large stocks of this shrub in anticipation of a considerable demand for it as a hedge plant, the letters of Mr. Fred J. Chittenden (p. 391), and Sir Frederick Keeble (p. 411) are of considerable importance. Perhaps I may describe its behaviour in East Kent. It was badly cut by the severe frosts of last winter in several places on the Thanet Beds. It also suffered on the Leas at Folkestone, with a south aspect and chalk subsoil. But on, perhaps, the coldest (certainly the most exposed) site of all, a high terrace on the chalk at Dover, it passed through the winter unscathed. In this case the soil was well manured, and so far, supports Sir Frederick's recommendation to try manuring. But in naturally fertile soils I can imagine this being easily carried too far, with the result that very succulent shoots, particularly liable to injury from frost, are produced. This would be the more likely to happen in districts of heavy rainfall. It is a case for judgment. Each planter will be swayed by local conditions. I may add that I have seen very few cases of the shrub being killed outright. Where there has been injury the plants have been cut back more or less severely, and afterwards have broken out again and made two to three feet of new growth during the ensuing summer. *W. P. W., Whitstable.*

Grey Squirrels.—The ubiquitous grey American squirrels are rapidly increasing, and have settled firmly in the counties adjacent to London. It would appear that it was from Regent's Park that these creatures originally spread; and to-day they are a source of grave concern to very many gardeners, amateur and professional. Here, on the Hertfordshire and Buckinghamshire borders, they are very numerous. The saddest part of their invasion is the extinction of the pretty brown English squirrel. Compared with our little native friends, the grey ones are more pugnacious, and being much larger require more food, and they get it. Unlike the brown squirrel, they do not hibernate in winter, although very severe weather may cause a few to lie up for a week or so. They breed rapidly, which only adds to the gardener's difficulties. Quite recently I tried to prevent a large squirrel from reaching a wood, curious to know what the "ball" was it had in its mouth. Being hard pressed, it dropped the ball, and I saw it was a young squirrel, which rapidly made off at right angles, and both got away. The mother was leaping yards at a time, and carrying her young like a cat. Their menu is extensive, and will include Pears and all wall fruits, Nuts of every kind, seeds of Hornbeam and Sycamore, Acorns, Fir cones, and pickings from house refuse. Systematic methods of keeping their numbers down have had to be adopted in many places. The Watford Borough Council's park authorities, in answer to complaints from gardeners adjacent to Cassiobury Park, had to destroy a large number, and at Latimer over one hundred were shot last spring. Grey squirrels are very wary of traps, but I have caught them in the ordinary square wire rat trap placed near a refuse bin. When cornered like this they are exceedingly savage, and care is needed in picking up the trap. There should be a certain value in a good skin, and the knowledge that a great many grey squirrels are now being destroyed annually should bring a demand. *G. W. Stacey, Chorley Wood Cedars, Hertfordshire.*

Calanthes with Flowers and Foliage.—I was much interested in the remarks of *J. C.*, relating to Calanthes retaining their foliage while in flower (p. 411). I can assure him that this indicates generous cultivation—which is quite essential if one desires to produce flower spikes five and six feet long. It is plain proof that when the plants retain their foliage all has been well during the growing season, such as freedom from insect attacks, due care in shading and airing, no premature drying off, and also that the night temperature has not been allowed to drop too low. These conditions conduce to healthy foliage and vigorous spikes. We have Calanthes here (November 22) with flower spikes five feet long, and the foliage still quite fresh. They are C. Veitchii and C. bella. *T. B. Field, Wych Cross Place Gardens, Forest Row.*

Huge Surplus of Scottish Potatos.—Great perturbation is being felt in Potato-growing districts in Scotland at the miserable prices—computed at something like half the cost of production—now being offered to growers, and it is felt some effort must be made if Scottish growers are not to be mulcted in the loss of over a million pounds. Various remedies are suggested, the latest being by Mr. D. W. Innes, President of the Kincardine County Executive of the National Farmers' Union, who advocates in a circular he has sent out to growers the exportation to South American and Mediterranean ports of five per cent. of the surplus, equal to some 50,000 tons. Of course, this could only be done by the formation of a pool, as no individual grower could be expected to incur a loss for the benefit of his neighbours. Were this sacrifice made, there would, Mr. Innes contends, be an immediate improvement on home prices. This remains to be seen. Meantime, it may be interesting to note here the peculiarities of our Potato markets, and the trade in general. In past years, during seasons when the Potato crop turned out a good one, there must have been noted a loud hue and cry set up among the middlemen regarding the great difficulty they would have in handling so large a crop, and that they could only do so with safety by offering very low prices for their supplies. Many growers were stampeded by this talk and sold out at once to prevent the risk of what appeared to them an even further fall. Then, when the great bulk of the crop had been transferred to the merchants' hands, large quantities of which were pitted for convenience on the growers' fields, there came slowly and mysteriously a big rise in prices, so one can easily picture the chagrin of a grower seeing his crop carted from the pits in his fields and knowing they were being sold at twice and even three times the price he had been paid for them. Even as it is, with prices for ware commanding little over 30s. per ton, let anyone go into a retail shop and ask for a stone of Potatos. It will be found that for the fourteen pounds weight of Potatos 6½d. at the lowest will be charged. This works out at £4 6s. 8d. per ton, and in districts, too, where Potato growing is carried out on a large scale. Somebody is making a good thing out of all this, even when transport and other charges are allowed on a generous scale. It is certainly not the unfortunate grower, for he, poor man, has the dice loaded against him from every point of view.—*Aberdonensis.*

GARDEN MANURES FOR DECEMBER.

In open weather, when ground operations may be carried out satisfactorily, the use of bulky, organic manure for incorporation with the soil in preparing it for future crops will probably be of the greatest importance from the manurial point of view during the present month. In this connection it may be noted that from the records of many manurial trials held in recent years there is considerable evidence to show that very heavy dressings of farmyard and similar manure are not desirable.

Generally, it may be stated that an application at the rate of fifteen tons per acre is sufficient for all ordinary purposes, and in one series of experiments where dressings of respectively fifteen tons and thirty tons per acre were allocated to adjoining plots there was no appreciable difference in the crops recorded. Moreover, an excessive supply of farmyard manure tends to favour soft growth which fails to produce normal crops, and is susceptible to the attacks of diseases, whereas all-round manuring produces sturdy plants resistant to attacks of disease and with a normal balance between their vegetative and reproductive parts.

There can be little doubt that a moderate application of bulky manure, supplemented by dressings of artificial fertilisers in the following spring and during the period of active growth, constitutes a practicable system of manuring which enables the grower to supply the various nutritive needs of the plant on the most economic basis.

It has been frequently pointed out that the physical factors of the plants' environment are at least as important as the manurial requirements, and thoroughness in soil preparation cannot be over emphasised. Not only will the greatest advantage accrue from the present application of organic manure, when its thorough incorporation with the soil is practised, but subsequent applications of artificial fertilisers will also be assisted to exercise their full benefit from this thorough cultivation. Apart from the fact that physical cultivation makes easy the incorporation of manures with the soil, without which much of their value may be lost, it always induces root action, and it is obvious that the greater the root surface and the more uniformly widespread the manurial agents, the more chance the plant has of absorbing available nutriment.

It may be stated that so much has been written on liming in recent years that there is no further need to extol its benefits, but in garden practice the present season is frequently a convenient one for the application of this important element, and a few notes on its uses may not be out of place. Not only is lime a useful manure in itself, but by its action in the soil it renders other plant foods more available. It is particularly useful on heavy, clayey soils, rendering them more friable and, on the other hand, it helps to make light soils more compact; it helps to decompose the organic matter in soils, it corrects sourness, releases potash, and hastens the processes of nitrification, while in soils well supplied with lime the dreaded finger and toe disease rarely, if ever, occurs.

A sufficiency of lime in our soils is, therefore, of paramount importance, and the increased use of chemical manures during recent years tends to increase the normal loss of calcium carbonate which occurs in soils, hence greater applications are needed to cover this loss.

Lime can be supplied to the soil in many ways. It has been already pointed out that such manures as basic slag and cyanamide contain a considerable proportion of lime, but not in sufficient quantity to maintain permanently the lime content of the soil. Gypsum is a natural form in which lime is found, its particularly valuable property being its power to retain ammonia. Shell sand, obtained from certain parts of the sea coast, contains a large proportion of lime, and is a valuable manure for nearly all classes of soils. It is sometimes supplied as lump lime, and slaked on the ground to reduce it to a sowable condition as slaked lime, but uniform distribution is not easy by this method, and by its caustic action it destroys organic matter in the soil; it is thus not wise to apply it to soils of low organic content.

For general garden purposes probably ground chalk or ground limestone are the most convenient forms in which to apply lime, and finely-ground samples applied at the present time may be expected to give results during the next season of growth. Lime has a tendency to sink rapidly into the soil and subsoil, and should therefore be applied to the surface after cultivating operations have been completed. Newly drained or reclaimed soils generally need liming, but many of our soils under intensive cultivation become deficient in lime unless moderate dressings are given every third or fourth year.

On newly reclaimed land which is pest-infested, it may be advantageous to apply fresh gas-lime, if this can be applied immediately so that its impturities become dissipated before the land is to be cropped. It contains sulphur compounds which are injurious to plant life as well as to the animal life of the soil, but when these have dispersed the residual lime acts as a fertiliser and re-agent in the same way as pure lime. *W. Auton.*

RATING RELIEF.

As our advice to a correspondent (see *Gard. Chron.*, November 9, p. 375) has been questioned, we publish the following extended information:—

The authority for our reply is the Local Government Act 1929 which amends and extends the provisions for rating relief contained in the Rating and Valuation (apportionment) Act 1928. Section 72 of the Local Government Act 1929 provides that the gross value of an agricultural dwelling-house shall be ascertained on the basis of its letting value as such and not on the basis of its letting value as an ordinary dwelling-house. In order to come within this section—

1. The house must be occupied in connection with agricultural land (which is defined in Section 2 of the Rating and Valuation (Apportionment) Act 1928).
2. The house must be used as a dwelling-house
    (a) by a person who is primarily engaged in carrying on agricultural operations on that land; or
    (b) by a person who is employed in agricultural operations on that land in the service of the occupier thereof, and is entitled, whether as tenant or otherwise, to use the house only while so employed.

The date of operation of this Section is April 1, 1930.

There are no fewer than five Acts of Parliament dealing with this question of Rating Relief and as in some cases several Acts have to be read together, it was considered to be less confusing to our correspondent to consolidate the numerous provisions of the relevant Acts in the general form of the reply.

The Rating and Valuation (Apportionment) Act 1928 provided that the valuation lists under which the new rating relief was to be given should come into force after October 1, 1929, but this date was subsequently altered to April 1, 1929, by the Agricultural Rates Act 1929. For some reason, however, the provisions of Section 72 of the Local Government Act 1929 do not come into force until April 1, 1930.

In view of the amount of correspondence received, which shows that many people are under the impression that the Act relates to this year's assessments, we may point out that they will not be entitled to the benefit of the Act until April 1 next.

SOCIETIES.

DEVON AND EXETER HORTICULTURAL.

This Society's show, revived after a lapse of fourteen years, was held in the Civic Hall, Exeter, on November 14 and 15. It is interesting to note that this Society was inaugurated just a hundred years ago. The number of exhibits, especially in the group and cut flower classes, was disappointing; but this was probably due to the diffidence which people sometimes have of exhibiting for the first time, or after a lapse of years. One can only hope that next year the schedule will be revised to enable others than subscribers to compete. The Apple and vegetable classes were more satisfactory, and were well filled, being quite up to pre-war standard. Pears were good, but not very numerous.

The Silver Cup presented by Miss E. V. Wills, of Haytor, for the best exhibit in classes 4, 5 and 6, was secured by Colonel H. Spencer Follett, C.B.E. (gr. Mr. M. S. Ashmead), with well-grown examples of Begonia Gloire de Lorraine. Mr. Willoughby S. Smith (gr. Mr. C. Coutts) won Sir Trehawke Kekewich's prize for the best exhibit in the Apple classes, with a very fine dish of Cox's Orange Pippin, and a prize by the same donor for Pears went to the Misses Mackinnon (gr. Mr. R. C. Baker), for a very fine dish of Doyenné du Comice. The President's prize, for the best exhibit of Chrysanthemums in the Amateur classes, was awarded to Mr. W. J. Nix, while the Silver Cup given by Messrs. W. Braford and Son, Ltd., Exeter, for the best basket of autumn foliage and berries, arranged for effect, was won by Mrs. N. R. Radcliffe, with a delightful arrangement.

The Silver Trophy presented by the late P. C. M. Veitch, Esq., J.P., V.M.H., for a collection of eighteen varieties of Apples, nine dessert and nine culinary, was won by E. Flamank, Esq., (gr. Mr. W. Collins), and the Cup presented by Sir Edgar S. Plummer, for a collection of vegetables, was won by the Misses Mackinnon (gr. Mr. R. C. Baker). There was only one entry for six Tree or Winter-flowering Carnations, distinct, and the Misses Mackinnon were awarded the first prize for well-grown plants of the varieties Cameron, Laddie, Malcolm, Topsy, Coral Glow and Sunset. In the class for four fibrous-rooted Begonias, Colonel H. Spencer Follett led easily with fine examples of Begonia Gloire de Lorraine, and was also first for six flowering plants, Chrysanthemums excluded.

For a circular group of Chrysanthemums in pots, J. W. Hussey, Esq. (gr. Mr. F. Woolacott) was the only competitor and was awarded the second prize, while in the class for six Single Chrysanthemums, on single stems, in pots, J. W. Hussey, Esq., was first.

The Misses Mackinnon were first for twelve Japanese Chrysanthemums, not fewer than six varieties, with excellent blooms of Mrs. B. Carpenter, Victory, Majestic, Queen Mary, R. C. Pulling, Birmingham and Yellow Majestic, Colonel A. D. Acland (gr. Mr. R. Habgood) being placed second. In the class for six distinct varieties, the Misses Mackinnon were again to the fore, with magnificent blooms of Majestic, Mrs. B. Carpenter, Aquitania, Queen Mary, Yellow Majestic and Scythia; and Colonel Acland was again second. In the class for six Incurved Chrysanthemums, J. W. Hussey, Esq., was first; and for six vases of Single Chrysanthemums, distinct, disbudded, Colonel H. Spencer Follett led, with fine blooms of Miss Joyce Moore, Golden Seal, Bronze Molly, Susan, Molly Godfrey and Red Molly. The Misses Mackinnon were second, their best vases being of Bronze Molly, Miss Joyce Moore, Cleopatra and R. Collins.

The Misses Mackinnon were first for six varieties of Single Chrysanthemums, not disbudded; while the first prize for any other variety of Chrysanthemum, was won by J. W. Hussey, Esq., Colonel Follett being second.

In the fruit section there was only one entry in the Grape classes, and the first prize was awarded to Colonel Follett for a creditable exhibit of Alicante. The first prize and Silver Trophy for a collection of eighteen varieties of Apples, was won by E. Flamank, Esq. (gr. Mr. W. Collins), with splendid dishes of Warner's King, Tower of Glamis, Mére de Mènage, Bramley's Seedling, Peasgood's Nonesuch, Bismarck, Lane's Prince Albert, Beauty of Kent, Lord Stradbroke, Adams's Pearmain, Lord Hindlip, Cox's Orange Pippin, Blenheim Pippin, Allington Pippin, American Mother, King of the Pippins, Charles Ross and Rival; second, Sir F. W. Acland (gr. Mr. E. Collins), his best dishes being of Bramley's Seedling, Annie Elizabeth, Tower of Glamis, Newton Wonder, Cox's Orange Pippin, Blenheim Pippin, William Crump, Adams's Pearmain and Charles Ross.

For a collection of six distinct dessert Apples, E. Flamank, Esq., was again successful, with well-coloured fruits of Adams's Pearmain, Allington Pippin, Charles Ross, Cox's Orange Pippin, Blenheim Pippin and King of the Pippins; second place being taken by Willoughby S. Smith, Esq., with good dishes of Adams's Pearmain, Barnack Beauty, King's Acre Pippin, Cornish Gilliflower, Cox's Orange Pippin and Charles Ross. In the corresponding class for culinary Apples, E. Flamank, Esq., again led the way, with Bramley's Seedling, Tower of Glamis, Stone's Pippin, Beauty of Kent, Peasgood's Nonesuch and Mére de Mènage; with Mrs. H. E. Tracy (gr. Mr. Rousley), a close second.

The single dish classes for Apples were well contested. Willoughby S. Smith, Esq., led for Cox's Orange Pippin and Cornish Gilliflower; but E. Flamank, Esq., was the leading exhibitor, securing first prizes for Blenheim Pippin, Peasgood's Nonesuch, Adams's Pearmain, King of the Pippins, Lane's Prince Albert, Bramley's Seedling, Gascoyne's Scarlet, Charles Ross, Newton Wonder and Allington Pippin; he also showed the first prize collection of dessert Pears.

The Misses Mackinnon were first for Glou Morceau in the single dish Pear classes; also for Josephine de Malines, Uvedale's St. Germain and Catillac. Colonel Follett led for Marie Louise; the Rev. W. G. Munk showed the best Pitmaston Duchess, and Mrs. H. E. Tracy was first for Winter Nelis.

The first prize and Silver Trophy for a collection of eight varieties of vegetables was won by the Misses Mackinnon. There were numerous other classes for vegetables, all of which were well filled, and there were conspicuous exhibits of Parsnips, Onions, Potatos and Cauliflowers.

In the classes for cottagers, artisans and allotment holders there was keen competition, and excellent produce was shown.

Trade exhibits contributed to the attractiveness of the show. Messrs. R. Veitch and Son, Exeter, set up a delightful group of Single Chrysanthemums, berried shrubs, Apples and Carnations.

Messrs. Jarman and Co., Chard, showed Chrysanthemums and Apples; Messrs. R. J. Case set up a splendid arrangement of Decorative Chrysanthemums; and Messrs. A. W. Hickley had a meritorious exhibit of Decorative, Single and Pompon Chrysanthemums. Certificates of Merit were awarded to all these trade exhibits, and also to E. J. Marden, Esq., J.P., for a splendid collection of Apples.

LANCASTER CHRYSANTHEMUM.

On November 16, this Society held its twelfth show, this being the sixth since its revival, in the Ashton Hall, and the exhibition was certainly a success.

The show was remarkable for the fact that local apprentice exhibitors have now become such craftsmen that they took all the leading prizes, particularly Mr. S. Carney and Mr. S. B. Carter. The former secured two Cups among thirteen first prizes, and the latter many firsts, including the Lord Ashton Cup. Mr. F. Smith, usually the leader, was handicapped by being about ten days ahead with his blooms, although his Japanese Chrysanthemum R. C. Pulling was the best bloom in the show.

Mr. S. Carney showed the premier bloom in the class for exhibitors employing no regular assistance, with Queen Mary.

The trophy winners were :—The Lady Storey Rose Bowl, for twelve Japanese blooms, Mr. F. Smith ; the Lord Ashton Cup, for a group, Mr. S. B. Carter ; the Alderman Jackson Cup, for the most points in section A, Mr. S. Carney ; the Councillor J. G. Clark Cup, for three plants of Japanese Chrysanthemums, Mr. S. Carney ; the Mrs. Musgrave Hoyle Cup, for a table of Single Chrysanthemums, Mrs. Pickard ; and the Miss Foster Cup, for a table of Decorative Chrysanthemums, Mrs. J. H. Massey.

In the open cut bloom classes some superb blooms were shown, and Mr. S. Carney secured the premier awards for twelve, six, three white, and three yellow Japanese blooms, with specimens in perfect condition ; and Messrs. F. Smith, S. B. Carter, E. Boardley and R. E. Coles (Barrow) interchanged places in these classes for second and third places. Mr. F. Smith led in the classes for three distinct Japanese blooms, nine, and a single Japanese. In the classes for Singles, Messrs. Carney and Smith shared the premier awards. Mr. Carney and Mr. Carter were the chief prize-winners in the classes for specimen plants.

In the other sections, some splendid blooms were shown, both Single and Japanese. The leading exhibitors were Mrs. Emmott and Messrs. E. Boardley, W. Smith, S. Winder, S. Carney, G. B. Parnell and W. Pinch.

Mrs. Emmott took first prizes for table decorations, an epergne and a bouquet ; and Mrs. Croft showed the best bowl of Decorative sorts.

The fruits and vegetables were very good. Miss Brighouse, Winmarleigh, secured the Alderman Curwen Cup with the most points for vegetables ; and Mr. W. Robinson, Forton, excelled with his collection of vegetables, and also secured many awards for his fruits. Other first prize winners were Councillor Mrs. Helme, Alderman Roberts and Messrs. T. Cook, T. Cole, I. Winder, R. C. Brighouse, J. Wilson and E. Hewitt.

IRIS SOCIETY.

The Annual Meeting of the Iris Society was held at the Grosvenor Hotel, London, S.W., on Wednesday, November 20, Sir William Lawrence, Bart., occupying the President's chair.

The Hon. Secretary, in his report, commented on the steady progress of the Society, both in membership and in the increase of its activities. The 1929 show, held on June 6 and 7, proved a great success, the attendance being much larger than at any previous show, and the number of exhibits showed a large increase of that of 1928. He expressed the gratitude of the Society to Mr. G. N. Bunyard for his research work on Iris diseases ; to Mr. George Dillistone, for organising the annual show ; and to Mr. P. R. Barr, for undertaking, and bringing so near completion, the arduous task of compiling a check list of Iris names. He also announced that the Society would in future publish a Year Book in July, instead of a Bulletin but that there would be special information leaflets circulated from time to time dealing with important matters regarding Iris culture.

The Hon. Treasurer presented his balance sheet, and stated that despite the heavy (and in some cases not recurring) expenses incurred during the year, the Society maintained a satisfactory balance in hand. Both reports were adopted.

The President then announced that at a previous Committee meeting, it had been decided to recommend the award of the Foster Memorial Plaque to Mr. G. L. Pilkington, for his enthusiastic and onerous work on behalf of the genus, and for his indefatigable efforts on behalf of the Society. Mr. Pilkington therefore becomes the second English recipient of this honour, and joins a small select band consisting of himself, Mr. George Yeld and Mr. J. C. Wister (United States of America), and Mons. S. Mottet (France). The meeting received the announcement with enthusiastic applause.

The Dykes Memorial Medal for 1930 (for the best seedling Iris) was awarded to "Joyance," a new seedling raised by Mrs. Dykes. Thus the first award of this Medal, in England, for a bearded Iris, goes in recognition of the foundation of a new series of seedlings laid by the man in whose honour and memory the medal was instituted, although in this case it represents the actual work of Mrs. Dykes, who continues her late husband's work.

Mr. George Dillistone was then asked to report progress with regard to the publication of the writings of the late Mr. W. R. Dykes. He stated these were now ready for the press, and submitted a specimen of the binding, paper and type it was proposed to use. The book he said, would make an excellent companion to the *Handbook of Garden Irises*, being about the same size (approximately 280 pages). It could be produced for sale at about 10s. 6d. or 12s. 6d., and he thought it would prove to be the most useful and interesting book on the genus hitherto published. It would appeal particularly to the amateur grower. This view was emphasised by Mr. George Yeld, who had assisted in the revision of the MS., and by Mr. G. P. Baker. who had made himself responsible for collecting many of the articles and also for obtaining guarantees for the cost of production. Mr. Dillistone was therefore instructed to proceed with all speed in the publication of the book, which he thought could be produced early in the New Year.

Mr. P. R. Barr reported that he had now completed his undertaking to compile a check list of Iris names, and submitted the list for inspection, and it was decided to proceed with its publication so soon as possible.

The Officers elected for the ensuing year were :—President, Sir William Lawrence, Bart. ; Hon. Secretary, Mr. G. L. Pilkington, Lower Lee, Woolton, nr. Liverpool ; Hon. Treasurer, Major George Churcher ; Hon. Editor, Mr. George Dillistone, 50, Claremont Road, Tunbridge Wells ; Hon. Auditor, Mr. L. Caldcott ; the Executive and Special Committees were re-elected *en bloc*.

After the meeting, the members present dined together, and some lingered discussing their favourite topic until after midnight.

CORBRIDGE-ON-TYNE CHRYSANTHEMUM.

The twenty-sixth Annual Exhibition of the Corbridge and District Gardeners' Chrysanthemum Society was held in the Town Hall, Corbridge, on November 16. This show again proved a great attraction and was well patronised. The Cottage Hospital, to whose funds the proceeds are mainly devoted, should benefit considerably thereby.

The Chrysanthemum blooms in all the classes were of exceptional merit, especially so in the Single, disbudded classes, and were probably the finest ever seen in this district.

In the class for four vases of Japanese, four varieties, J. C. Straker, Esq. (gr. Mr. A. Hay), Stagshaw House, was first, showing exceptionally fine blooms of Mrs. R. C. Pulling, Mrs. A. Davis, Miss F. Jolliffe and Mrs. H. Wells. The Dowager Lady Allendale (gr. Mr. J. Thomas), Bywell Hall, was second, with finely finished blooms of Majestic, Mrs. A. Davis, R. C. Pulling and Miss F. Jolliffe. In the class for six Japanese blooms, two varieties, Mr. Straker was first, with Algernon Davis and Red Majestic, and the Dowager Lady Allendale, second, with Red Majestic and Mrs. J. Gibson. For three Japanese Chrysanthemums in not fewer than two varieties, J. C. Straker, Esq., was again first.

In the class for three white Japanese blooms, A. Dove, Esq. (gr. Mr. L. Sharp), Riding Mill, led with good blooms of Mrs. H. Wells ; for three yellow Japanese, J. C. Straker, Esq., was first, showing R. C. Pulling, and also for three pink Japanese blooms with Algernon Davis ; while in the class for three bronze Japanese blooms, first place was taken by the Dowager Lady Allendale, showing Majestic in grand form. For three crimson Japanese blooms, first prize went to J. C. Straker, Esq., who showed lovely flowers of Mrs. G. Monro.

In the class for Incurved varieties, the Dowager Lady Allendale led, with J. C. Straker, Esq., second ; while for two vases Single Chrysanthemums, disbudded, J. C. Straker. Esq., was again successful, with grand flowers of Susan, Miss M. Thorn, Hilda Shoebridge and Supreme ; J. Straker Smith (gr. Mr. J. Winder), Howden Dene, was second. Lord Allendale (gr. Mr. A. Merrington), Dilston Castle, was first for two vases of Decorative kinds ; the Dowager Lady Allendale, second ; J. Straker Smith, Esq., third. The remaining classes for Decorative and Single varieties were well filled and some very fine specimen plants were also exhibited. One of the great features of the show was the very fine collections of Carnations from Lord Allendale and Mr. J. C. Straker.

In the fruit classes, Apples were the chief attraction. For nine dishes of Apples J. A. Baty, Esq. (gr. Mr. T. Denwoddie) was first, showing good dishes of Warner's King, Lord Derby, Bramley's Seedling, Laxton's Supreme, Charles Ross, James Grieve, Worcester Pearmain and Ribston Pippin ; J. C. Straker, Esq., was second. For four dishes of Apples, two dessert and two cooking kinds, J. A. Baty, Esq., again led, showing Cox's Pomona, Lord Derby. James Grieve and Worcester Pearmain. J. Straker Smith, Esq., was second. There were but two competitors in the Grape class, J. C. Straker, Esq., winning with finely finished bunches of Black Alicante.

The vegetable classes were well contested. Leeks especially being extensively represented.

CARDIFF GARDENERS'.

The fortnightly meeting held in the Queen's Hotel, on November 26, was presided over by Mr. W. H. Pryce. As this was "Question Night," there was a good attendance, as many members have an opportunity to air their views, and get difficulties solved. Probably some of the most interesting questions asked and answered were on Chrysanthemums, Dahlias, seed Potatos, pruning shrubs, the use of Volke, white fly and Begonia mite, and the value of cordon Apple trees in the small garden. After a lengthy discussion, it was unanimously decided that Laxton's Progress was the best dwarf Pea.

An excellent exhibition of three dishes of Apples was staged, and the first prize was awarded to Mr. W. Clarke ; second, Mr. J. Jones ; third, Mr. T. Kirby. There was also a good show of Decorative Chrysanthemums, and prizes were won by Mr. J. Jones, Mr. A. Cassom, and Mr. T. Thorburn. Points were also awarded to Mr. J. Jones for a magnificent dish of Doyenné du Comice Pears ; to Mr. H. Jenkins for Apples ; Mr. Baker for Chrysanthemums ; and Mr. Kirby for Pears.

Towards the close of the meeting reference was made to the recent successes of several members, and the fine result of the Llanishen and Lisvane Chrysanthemum Society's first show.

ROYAL BOTANICAL AND HORTICULTURAL OF MANCHESTER.

The Autumn Show of this Society, held in the Town Hall, Manchester, on November 12 and 13, was a great success. All the competitive classes were well filled, and the trade was well represented. The general management of the show was excellent.

The show is primarily for Chrysanthemums, and these were the chief feature. Messrs. W. J. Garner and Sons, Altrincham, were first in the large group class, and were also awarded a Gold Medal. Mr. H. Woolman exhibited a very fine lot of blooms which won the *Manchester Guardian* Challenge Cup ; and Messrs. Keith Luxford and Co. were awarded a Gold Medal, as also were Messrs. Dickson and Robinson. In the big Orchid class, Mr. John Evans. Colwyn Bay, secured the first prize and *Daily Dispatch* Challenge Cup, staging a very fine exhibit.

The Manchester Parks Department displayed a fine exhibit of Palms, Ferns and Chrysanthemums, which formed a fine setting to the large platform. Perhaps the most interesting and educational exhibit came from the Cheadle Royal Mental Hospital gardens, for Mr. A. Falconer staged well over one hundred dishes of choice vegetables. This exhibit was awarded a Large Gold Medal, and included Peas, Beans, Cauliflowers, Capsicums, Celery, Cardoons, and many of the more uncommon vegetables.

NEWCASTLE-ON-TYNE HORTICULTURAL.

The Newcastle-on-Tyne Horticultural Society held its annual show in the Royal Engineers' Hall, on November 20 and 21. There was a record number of entries, the quality of the blooms, pot plants, Leeks and collections of vegetables altogether surpassed last year's excellent exhibits.

J. C. Straker, Esq. (gr. Mr. A. Hay), Stagshaw House, Corbridge, won the W. F. Henderson Cup, with twelve Japanese Chrysanthemum blooms, and also the Cup given for the most meritorious exhibit in the show. The Lord Ravensworth Cup, for a collection of vegetables, was won for the second year in succession by Mr. Thomas Etty, Heddon-on-the-Wall; the W. F. Henderson Cup, for six Japanese Chrysanthemum blooms, confined to members of the Society, was awarded to J. C. Straker, Esq., and the Townend Cup, for a miniature rock garden, was won for the third time in succession by Mr. J. Kirkbridge, Foresthall, and now becomes his own property.

Specimen Chrysanthemum plants were a very strong feature, and Mr. J. B. Smith, Fawdon Nurseries, Gosforth, showed especially fine plants of Blanche Poitevene, one with one-hundred-and-twenty-two blooms and another with ninety-four perfect blooms.

The winner in the table decoration class was Mr. J. B. Smith, who had an artistic arrangement of pink Single Chrysanthemum Flora; there were seven competitors, the second prize going to Miss Lang, Monkseaton. The first prize for pot Leeks, always a strong class in the north-east, was carried off by Mr. J. W. Oliver, Fourstones.

The Dowager Viscountess Allendale (gr. Mr. J. Thomas), Bywell Hall; Lord Ridley (gr. Mr. T. Mytton), Blagdon Hall; and S. Harrison Smith, Esq. (gr. Mr. T. J. Davidson), were among the successful exhibitors in the fruit and cut bloom sections.

The amateur classes were well filled. A Gold Medal, given by Messrs. J. B. Smith and Co., Fawdon Nurseries, for the most meritorious exhibit, was won by Mr. J. S. Charlton, Gateshead.

The honorary exhibitors included Messrs. S. Finney and Co., who had bulbs, sundries, etc.; Messrs. J. B. Smith and Co., Chrysanthemums; Messrs. C. J. Dillon, shrubs, Rose plants and an ornamental garden; Messrs. S. Thomson, a group of miscellaneous plants and rustic arches; the Parks Department, a group of Begonia Gloire de Lorraine; Mr. George Lee, large specimen Palms and Bay trees; Messrs. J. S. Patterson and Sons, stone garden ornaments; and Messrs. T. Fairbairn and Sons, a group of the winter-flowering Begonia Elatior.

GUILDFORD GARDENERS.'

The Annual Meeting was held on Tuesday, November 19, and there was a good attendance of members, many of whom had come from distances up to twelve miles.

The President, Mr. W. T. Patrick, J.P., in presenting the comprehensive Report of the Committee, and Statement of Accounts, said he felt any association might be very proud of it. The report showed continued progress, not only in membership and finance, but in work done.

He ventured to suggest that the claims of the committee that the Association was one of the strongest in the south of England were amply justified. The Association was doing a great deal to give people the opportunity of learning more about horticulture. What better recreation and relief from the worries of business could they find than working among the flowers of which they were so fond? The Association's work was of considerable educational and social value to Guildford and the neighbourhood. He had been to the trouble of trying to discover an association so strong as theirs in the south of England, but had not found one with a report such as they were issuing. They needed members to act as missionaries to secure honorary members and vice-presidents. It was gratifying to see that there was a membership of 885, and that no subscription was owing. That state of affairs was largely due to the energy displayed by Mr. Childs.

Cordial thanks were given to the press, with special mention of *The Gardeners' Chronicle*, by means of which the work of the Association is made known to a wider circle.

So far as the finances were concerned, it would be seen that the great event of the year, the Summer Show, was a heavy item, and did not clear expenses by £26. Also the monthly *Journal*, delivered free to all members, was a charge of £47 on the general funds; but the other sections—the outings, whist-drives and social activities—were satisfactory, in fact, the accounts were the most satisfactory since the formation of the Association. They were now fairly in the saddle, and the President did not see why they should not continue to progress. The credit balance last year was £66 7s. 11d., and this year it was £150 5s. 8d. The lectures and outings were very instructive, and the annual show maintained its high standard and popularity. Part of the Association's work was to educate the elementary school children in gardening, and they were indebted to the school-masters for their assistance.

Mr. Patrick asked that a new President should be appointed, but he was re-elected, tributes being paid to his services by Mr. A. J. Joy and Mr. W. F. Stedman. The other officers were elected as follow: Hon. Secretary, Mr. C. F. Childs; Hon. Secretary to Show Committee, Mr. P. Pettit; Committee: Messrs. F. Ansell, W. F. Binfield, A. Blake, J. H. Blunden, E. Hewett, A. Jakins, A. J. Joy, W. Long, J. Mackay, G. H. Mason, T. Newman and A. H. White.

A surprise item was a personal gift by the President to Mr. Nation and Mr. Stedman of four bound volumes of the monthly *Journal* as an expression of his appreciation of their services to the Association.

The winter programme began with a social gathering on the last day in October; Mr. A. E. Burgess gave a helpful and informing lecture on "Manures and Manuring" on November 12; and there was a whist drive on Wednesday, November 27. The next lecture is on "Rock Gardens," by Mr. J. Coutts, Assistant Curator of Kew Gardens, on Tuesday, December 10.

DERBYSHIRE HORTICULTURAL.

The twenty-second Chrysanthemum Show held at Derby early in November, under the auspices of the Derbyshire Horticultural Association, was undoubtedly the biggest step forward in the Chrysanthemum movement in the midland counties this year. Over 350 entries from seventy-five exhibitors so heavily taxed accommodation in the Royal Drill Hall, that the glass-covered annexe had to be requisitioned.

Messrs. Mansell and Hatcher staged a 200 square feet group of Orchids, including Cattleyas, Odontoglossums, Lycastes, Cypripediums, the interesting Bulbophyllum Lobbii var. siamense, and a good plant of Selenipedium longifolium var. Hartwegii, and were awarded a Large Gold Medal. At the other end of the hall, Messrs. Sutton and Sons exhibited 120 dishes of vegetables, comprising fine specimens of Capsicums, Celery, Leeks, Potatos, Onions, yellow and red Tomatos, Sugar Corn, ornamental Gourds, and dishes of most varieties of vegetables in general use, and for which they were also awarded a Large Gold Medal.

The centre of the hall was occupied by a miscellaneous group of exotic plants, 100 square feet, including Pandanus Veitchii, Codiaeums, Nandina domestica, Eulalias, Liliums, winter-flowering Begonias Gloire de Lorraine and Optima, surmounted by a large Kentia, and for this Mrs. Walter Evans (gr. Mr. J. Maxfield), Darley Abbey, was awarded the Silver Cup presented by H. T. Ann, Esq., Chairman.

Close to this were two groups kindly sent by A. Leslie Wright, Esq. (a Vice-President), (gr. Mr. J. Cartledge), Butterly Hall, which included Alocasia Lowii, Eulalias, Dracaenas, Nephrolepis todeaoides and Adiantums, as well as many varieties of Chrysanthemums; the same gentleman also decorated the platform with Kentias, Liliums and Chrysanthemums, and was awarded a Gold Medal.

Trade exhibits included displays from Mr. H. Woolman, Messrs. Dickson and Robinson, Messrs. Allwood Bros., Mr. C. Gregory, Messrs. William Lowe and Son; and alpines, Messrs. Dickinson, Mr. Stephen Sims, Messrs. J. M. Stewarts, Messrs. C. D. Cheesborough, and Mr. J. H. Coley.

The Captain Drury-Lowe Silver Cup for two dozen Japanese Chrysanthemums attracted five entries, and was won by Captain R. B. Brassey (gr. Mr. J. G. Quinn), Cottesbrook Hall, Northampton; second W. E. Ann, Esq. (gr. Mr. L. Dutton), Darley Field; third, Mrs. Walter Evans, Darley Abbey. The President's Cup, presented by J. A. Aiton, Esq., of Duffield Park, also went to Captain R. B. Brassey; second, Mr. H. H. Tomlinson, Derby; third, Mrs. Walter Evans. The G. H. Strutt Silver Cup, for a display of Single Chrysanthemums nine feet by three feet, was awarded to W. E. Ann, Esq.; second, Mrs. G. H. Strutt (gr. Mr. J. Middup), Belper; third, Mrs. Walter Evans; fourth, J. A. Aiton, Esq. (gr. Mr. J. H. Thomas). Messrs. J. Peed and Sons' (London) Silver Cup was won by W. E. Ann, Esq., Darley Fields; second, Mrs. Walter Evans, Darley Abbey: third, J. A. Aiton, Esq.

In the members' Classes, Mr. H. H. Tomlinson, Derby, won the C. W. Catt Cup, with twelve Japanese blooms arranged for effect; second, Mrs. Walter Evans; third, L. A. Clowes, Esq. (gr. Mr. J. Hammond), Norbury Hall. The Association's Silver Challenge Shield for twelve dishes of British-grown hardy fruits, went to Mrs. Walter Evans; second, J. Woodward, Esq., Draycott: third, W. E. Ann, Esq., Derby. The Silver Cup presented by Mrs. Bourne Wheeler this year in remembrance of her father, was won by Mrs. Walter Evans; second, Captain Brassey; third, Sir William Bass (gr. Mr. J. E. House), Burton-on-Trent.

Messrs. With's (Hereford) Silver Cup was awarded to Mr. J. Woodward, for a collection of vegetables (nine kinds); second, Mrs. A. Moore, Alvaston; third, Mr. F. A. Burton, Derby.

The Silver Cup for a semi-circular group of Chrysanthemums, five feet by four-and-a-half feet (plants only), was won by C. S. Buck, Esq.; second, Mr. A. Moore; third, Mr. J. Potter. The W. E. Watt Silver Cup offered to artisan members, for six Japanese blooms, was won by Mr. F. Meakin, the late Secretary; second, Mr. P. Spencer, Belper; third, Mr. J. Brown, Kilburn. The Derby *Daily Telegraph* Cup for a collection of vegetables (six kinds), was won by Mr. A. Moore; second, Mr. J. B. Jessop, Belper; third, Mr. J. W. Fulcher, Draycott.

The new provincial class provided by the National Chrysanthemum Society for twelve Japanese blooms, distinct varieties, secured a good competition, and Captain R. B. Brassey, Northampton, won the first prize and Silver Medal; second, and Bronze Medal, Mr. H. H. Tomlinson, Derby. The premier bloom in the open classes, carrying the N.C.S. Certificate, was won by Captain R. B. Brassey, with a fine specimen of Majestic; while in the artisan classes, Mr. F. Meakin was successful with a grand bloom of Mrs. Gilbert Drabble.

Over 12,000 people paid for admission to the show, and the Derby Education Committee ran special cars for the school children, about one thousand of whom evinced a keen interest that was very pleasing.

The opening ceremony was performed by Mrs. Bourne Wheeler, of Netherlea Hall, Holbrook, to whom a bouquet of Carnations was presented by Miss Lawsley. The secretarial duties were carried out by Mr. W. Wardman, 5, St. Augustine Street, Derby.

WIMBLEDON GARDENERS'.

The eleventh annual exhibition of the Wimbledon and District Gardeners' Mutual Improvement Society was held in The Drill Hall, St. George's Road, Wimbledon. The exhibition was opened by Percy Mortimer, Esq., J.P., who spoke feelingly of the absence of Sir Joseph Hood, Bart., J.P., through illnesss. Among those present were Her Grace The Duchess of Buckingham and Chandos, Lady Hood, Lady Power, Lady Holland, The Mayor and Mayoress, Sir James Caird, Bart., J.P., T. C. Summerhays, Esq., J.P., A. Hosking, Esq., Chairman of the

Society, and Mr. W. G. Wood, Hon. Secretary and Treasurer.

The show was a very large and varied one, consisting of 309 entries—thirty-six more than that of the previous year. Mr. W. Hunt was superintendent of the show, and was very ably assisted by the members of the Committee.

In the evening the hall was packed by an admiring crowd, which made it a difficult task to pass round and view the splendid array of flowers, vegetables and fruits, as well as jams, jellies, bottled fruits, marmalade, cakes, bread and cooked Potatos.

Mr. Frank Moon was the chief prize-winner, taking the George Roberts Silver Challenge Bowl, the Silver Bunyard Medal, the Silver Toogood Medal, as well as a large number of other prizes. As he won the Bronze Banksian Medal in 1928, this passed to Mr. K. Norrie. Mr. W. E. S. Debenham Cook won the Gold Medal presented by Major T. Lethaby for the premier bloom. Mr. F. J. Chapman retained the Silver Cup in the amateurs' and Cottagers' section.

Mr. E. Abraham held a guessing competition with a box of Apples, the prize winner being Mr. Henry Young; and Mr. J. Lyne disposed of a large quantity of fruit at the conclusion, the resulting sums of money benefiting the Royal Gardeners' Orphan Fund and the local hospitals. In the opinions of many present, this was the best show the Society has ever held.

NATIONAL CHRYSANTHEMUM.

Notwithstanding the dismal weather, there was a good attendance at this meeting of the Society's Floral Committee, held at the R.H.S. Hall on December 2, when a dozen novelties were presented and the following awards made :—

First Class Certificates.

Kenneth Hastie. II. 1*b*.—A very bright, rich crimson Decorative variety, with golden tips and dull old gold reverse to the central florets. Shown by Mr. H. Shoesmith, Junr.

Mrs. A. H. Boaden.—*I.* 2.—A rather small but very attractive Incurved variety of soft golden-yellow colour. Shown by Messrs. H. J. Jones, Ltd.

Golden Balcombe. II. 1*b*.—A useful late-flowering, golden-yellow Decorative variety, with firm, fairly broad florets. Shown by Mr. T. Stevenson, Hillingdon.

Gladys Pierson. II. 2.*a*.—In this loosely Incurved-Japanese form the flowers are large and the colour a pleasing shade of golden-buff. Shown by Messrs. Keith Luxford and Co.

Balcombe Bronze.—A highly decorative variety of very pleasing form; the colour is deep bronze, with gold tips to the inner florets. Shown by Mr. A. G. Vinten.

EDINBURGH CHRYSANTHEMUM SHOW.

A second-year effort to resuscitate the Edinburgh Chrysanthemum Show was much more successful that the first. Although not promoted by the Royal Caledonian Horticultural Society, the three days' exhibition, which was opened on November 21, in the Drill Hall, was under its patronage, and there is a possibility that the Directors will favourably consider in the near future a proposal to take over its future management.

On this occasion the entries in the three sections—Chrysanthemums, fruits and other flowers—numbered approximately three hundred, and a healthy competition was experienced in several of the seventeen classes for Chrysanthemums.

In the class for six vases of Decorative varieties, disbudded, which carried with it the Millgrove Challenge Trophy, Mr. Robert Grant, Boness, defeated Mr. James C. Lyle, Inverkeithing, the winner's best blooms being Cranfordia, In Memoriam, Lady Brunton and Hopetoun Beauty.

The trophy presented in the class for six vases of Decorative blooms, not disbudded, was won by Mr. R. McKenzie, Dochfour Gardens, Inverness, who staged specimens of Emily, Johnstone, Almirante, Jean Pattison and Pax in fine condition. He was also first for four vases of Decorative, disbudded, and for three Japanese blooms.

Mr. G. Wilson, Gogarburn Gardens, Corstorphine, was a strong candidate for the Cup presented in the class for four vases of disbudded Singles, which he won with a first-class quartette composed of Susan, Bronze Mollie, Joyce Moore and Phyllis Cooper, and he also excelled in three other classes, viz., for two vases of Decorative, disbudded; three vases of Decorative, not disbudded; and nine Japanese blooms.

Considerable interest centred in the competition for eighteen blooms of Japanese Chrysanthemums, the first prize winner in which was to be rewarded with a Challenge Trophy, commemorative Medal, and a cash prize. The blooms were staged singly in individual vases and made an imposing display. The winner was Mr. J. Loan, Coldstream, and the best flowers in his group were Francis Rowe, Red Majestic, Yellow Majestic, Mrs. George Monro and Majestic.

The classes for Single Chrysanthemums were well filled and the flowers were of superior quality generally. Mr. W. Lamb, Prestonfield, Craigmillar, gained first prizes in two classes, one disbudded and the other not disbudded, with outstanding examples of Phyllis Cooper and Ceddie Mason, while Mr. W. Swan, West House Gardens, Morningside, succeeded with four vases, containing not more than twelve sprays, which included unfinished specimens of Robert Andrews.

The decorative and pot plant sections were poorly represented. Here the first prize winners were Mr. A. S. Watt (one vase with any decoration); Mr. Alex. Cameron, Liberton (bouquet); Miss Grant, Boness (basket), and Mr. A. McKay (two pots Decorative and two pots of Single Chrysanthemums).

In the fruit section, Mr. J. Loan was first for four dishes of baking Apples, and for two dishes and one dish of dessert Apples.

Vegetable exhibits were numerous and of superior quality. Mr. A. C. Cameron won the Challenge Cup for the best display of vegetables with a collection numbering twenty-seven varieties, and Mr. J. Cochrane, Galashiels, had three first-class honours to his credit. The Medal for six varieties of Potatos was awarded to Mr. W. Redpath, Holylee, who also staged the best round, kidney and coloured Potatos; Mr. W. Lamb, Prestonfield, scored with six Leeks.

In the non-competitive section, Gold Medals were awarded to the City Parks Department for an imposing display of Chrysanthemums in pots; to Messrs. Dobbie and Co., for a comprehensive collection of cut blooms; and to Messrs. Wilson and Co., for a choice exhibit of Begonias and Cyclamens.

READING GARDENERS'.

There was a very large attendance of members at the fortnightly meeting held in the Abbey Hall on the evening of November 18 and presided over by the President, Mr. Frank E. Moring.

The subject for discussion was "The Propagation of Flowering Trees and Shrubs," and this was introduced in a most interesting talk by Mr. W. Martin, Victoria Nurseries, Reading. In his opening remarks, he said that the subject was one of the most fascinating branches of horticulture, and was of extreme importance, whether private or commercially. The lecturer suggested various methods of procedure with a few of the most popular kinds, and mentioned that there were several methods of propagation, by seeds, division of roots, cuttings, layering, budding and grafting. Practical details were given on each method.

A discussion followed, sustained by Messrs. Broomfield, Howlett, Lowe, Moulton, Waite, Clacy, Roberts and others. At the close Mr. F. Townsend proposed a hearty vote of thanks to Mr. Martin.

There were some magnificent specimens of Apples and Pears in the various competitions. In class 1, for three dishes of Apples, two culinary and one dessert, there were ten entries, the first prize going to Mr. H. Tuffin, Iris Court Gardens, Pangbourne; and the second to Mr. A. Manley, Highfield Park Gardens, Heckfield.

In the class for three dishes of Pears, three distinct varieties, there were nine entries. Mr. H. Tuffin was again first, and Mr. W. Turnham, Greenlands Gardens, Henley-on-Thames, second.

In class 3, confined to single-handed gardeners and amateurs, for a dish of Apples, there were five entries. Mr. C. J. Howlett, The Yews, Earley, was first, and Mr. A. E. Sharpe, Alexandra Road, Reading, second.

In the non-competitive section, Mr. C. J. Howlett staged several vases of Chrysanthemum blooms and three dishes of Lady Henniker Apples: while Mr. R. Turner, Southview, Calcot, showed a vase of seedling Single Chrysanthemums.

MAIDENHEAD CHRYSANTHEMUM.

The Maidenhead Chrysanthemum show was held in the Drill Hall in mid-November, and was a great success. The entries were many and the quality of the big blooms in the vase class excellent. These were best shown by Lady Finlay (gr. Mr. R. Evans), who won the first prize for the third year in succession, and so secured the Viscount Hamilton Cup; the N.C.S. Certificate was also awarded to Lady Finlay. Large blooms of Louisa Pockett were shown by Mrs. Hornby Lewis (gr. Mr. Friend), who came second; and Mrs. Thompson (gr. Mr. D. Barnard) was third.

The groups were very fine, and the premier award was won by Lady Vansittart Neale (gr. Mr. McCaul), who received the Mop Cedar Cup, which she has now won outright. Second, J. Bouton, Esq., Marlow (gr. Mr. Clark); third, E. C. Eastick, Esq. (gr. Mr. Hoyle).

Other classes were well filled, the Single Chrysanthemums, fruits and vegetables being excellent. Trade exhibits filled one end of the hall and were from Mr. Hatch, of Cookham, who was awarded a Gold Medal. Most of the prizes offered were given by the Maidenhead tradesmen, who always generously support the Society.

SHEFFIELD CHRYSANTHEMUM.

The Sheffield Chrysanthemum Society's forty-second Annual Exhibition, held in the R.F.A. Drill Hall, Sheffield, on November 14, 15 and 16, provided a grand display, for the blooms exhibited were quite up to standard, and were a great tribute to the skill of the Sheffield and district gardeners, who comprised ninety per cent. of the exhibitors. The entries were only ten short of the record 695 of last year, and this year's number of individual competitors constitutes a record.

A very interesting feature of the show was the artistic rock garden in Derbyshire tufa, complete with pool, exhibited by Mr. Stephen Sims, for which he received a Gold Medal. There were thirteen groups by members of the Society and six exhibits in the very interesting decorated fireplace class.

Mr. H. Woolman was awarded the first prize for a collection of Japanese blooms, and also received a Gold Medal for his grand group of Single Chrysanthemums. Messrs. Seagrave and Co. received a Gold Medal for their non-competitive exhibit of Chrysanthemums, and a Gold Medal was also awarded to Messrs. Sutton and Sons for a splendid collection of Potatos.

In the open classes for Chrysanthemums, Mr. W. Fletcher showed the best six vases of Single varieties; Mr. H. Woolman was first for eight vases of Japanese blooms, and for a display of Single Chrysanthemums, while Mr. G. Hopkinson, Sheffield, led for four vases of Japanese blooms, Messrs. H. Rutter and Sons for three blooms of a yellow variety, Mr. George Thomas for a pink or red Japanese Chrysanthemum, and also for three blooms of any other coloured variety.

Mr. E. Bagshaw, Chapel-en-le-Frith, showed the best eighteen Japanese blooms, any varieties; Mr. E. Fletcher was first for twelve Incurved blooms, and Mr. H. W. Walker, Sheffield, showed the best five vases of Single Chrysanthemums.

Other prize-winners in this section were Mr. J. W. Ambler, Sheffield, for six vases of Decorative blooms; and Mr. W. Fletcher, who was first for a vase of nine Japanese blooms, six vases of Singles, and six pot plants of Primulas, any varieties.

In the district classes the most prominent exhibitors were Mr. C. Fletcher, Mr. W. Tozer, Mr. W. Hyde, Mr. M. Croshin, Mr. W. Smith and Mr. C. Hinchcliffe.

The leading prize-winners among the amateurs were Mr. G. Hopkinson, Mr. W. W. Stiles, Mr. W. Smith, Mr. G. W. Amber and Mr. H. Furness, while in the cottagers' classes, the first prize winners were Mr. W. Furness (three), Mr. W. Marlow and Mr. E. Wragg. Mr. W. Furness was also successful in the novices' Chrysanthemum section, as also were Mr. J. W. Walker, Mr. A. Yeardley, Mr. G. Drury, Mr. C. E. Elliott, Mr. G. W. Hill and Mr. A. J. Beech.

The vegetable classes, both open and for amateurs, were well filled, and these proved an interesting feature of the show.

BARROW CHRYSANTHEMUM.

The ninth Annual Chrysanthemum Show of this Society was held on November 9, in the old Town Hall, when there was a capital show, and the entries were above the average.

Barrow is fortunate in having some stalwart Chrysanthemum exhibitors from pre-war days, and they are still in the front rank, and include Mr. Christian and Mr. Muddiman. The former was the principal prize winner in the open section, Mr. E. Oxley in the amateur section, and Mr. L. Jordon in the novices' section. Messrs. Hexham took first place for a trade exhibit, with Mr. Muddiman second; while Mrs. Benson, Grange-over-Sands, was first for a table decoration.

Other successful exhibitors were:—Captain J. Fisher (President), and Messrs. J. Clark, R. E. Cole, J. H. Farnham, H. Goldstraw, T. Holmes, R. F. Jones, J. McPherson, A. Nicholls, J. P. Smith, A. W. Thompson and F. T. Wilson.

Obituary.

W. Wesker.—An old and valued member of the Committee of the United Horticultural Benefit and Provident Society, Mr. W. Wesker, met his end with tragic suddenness on November 26. He was returning home early that morning when his bicycle skidded, he was knocked down by a passing motor-van and died without regaining consciousness. Mr. Wesker underwent a severe operation about two years ago, and since then had practically retired, although retaining his interest in all gardening matters and especially in allotment gardening in the Wandsworth and Tooting districts, In the early '80's Mr. Wesker was a successful exhibitor at the Regent's Park shows, and he also won many prizes for trained Chrysanthemums in the days when the National Chrysanthemum Society held exhibitions in the Royal Aquarium. For many years he was gardener to the Holloway family (contractors) and was literally a friend of the family. A robust, jolly man until his operation, Mr. Wesker's good spirits never failed under his severe illness. A very likable man, he was greatly loved by the Officers and Committee of the U.H.B.P., all of whom will sadly miss his cheery personality and his bluntly outspoken observations. The funeral took place at Streatham Cemetery on November 30, when many friends and representatives of the U.H.B.P. and the Tooting Brotherhood—of which he was a prominent member—paid tribute to the deep affection in which their friend was held.

ANSWERS TO CORRESPONDENTS.

Area for Fruit and Vegetable Garden.—*Auricula.*—Four acres of land should be sufficient to produce the quantities of fruits and vegetables required, but it is better to err on the side of having a larger area, than not sufficient to meet requirements. No hard and fast rule can be given as to weights, as in these days all vegetables should be served *ad lib*, and much depends on whether they are to be provided for growing school boys or elderly persons. The question of labour to grow the quantities stipulated depends on whether the ground is to be worked by hand, or with up-to-date implements and machinery. If the former, three men and a boy; if the latter two men, and a boy to collect the produce and deliver, but much depends on the man in charge as to his ability to get things done, and employing good experienced workmen. No head gardener worthy of the name should undertake Saturday and Sunday duties except under exceptional circumstances. The glasshouses enumerated could be managed by one man to produce the required crops, and he could also find time to keep paths tidy and assist in the vegetable and fruit garden. The mowing of four acres of lawn with a hand-machine in these days of cheap motor-mowers is false economy; the area stipulated being approximately one days work with a suitable machine. To sum the whole matter up, if the place is to be worked on up-to date lines, the head gardener, three men and a boy should meet the requirements, but much will depend upon their ability and general circumstances.

Names of Fruits.—*E. P.* 1, Yorkshire Beauty; 2, Bismark; 3, Winter Greening.—*G. W. G.* 1, badly decayed, not recognised; 2, Pitmaston Duchess; 3, Cellini; 4, Golden Noble; 6, Marguerite Marillat.—*E. S.* 1, Newton Wonder; 2, Dumelow's Seedling.—*Altho.* 1, Cox's Orange Pippin; 2, probably Benn's Red; 3, Blenheim Pippin.—*B. E. G. B.* 1, poor specimen, send again; 2, Warner's King; 3, Gold Medal; 4, Early Victoria; 5, 6 and 7, poor specimens, send again; 8, Belle Julie.—*C. W.* King of Tompkins County.—*Puzzled.* 1, Royal Late Cooking; 2, Endsleigh Beauty; 3, Winter Greening (?); 4, Royal Late Cooking; 5, Ribston Pippin; 6, Gravenstein; 7, Golden Noble; 8, The Queen; 9, Blenheim Pippin; 10, Duke of Devonshire; 11, Christie's Pippin; 12, Bramley's Seedling; 13, Lord Derby; 14, Royal Jubilee; 15, not recognised; 16, Yellow Ingestre; 17, Braddick's Nonpareil; 18, Hormead's Pearmain; 19, Lord Derby. *G. B.* 1, Baumann's Red Reinette; 2, possibly Hormead Pearmain; 3, poor specimen, not recognised; 4, Norfolk Beefing.—*A. C.* 1, poor specimen, possibly Bramley's Seedling; 2, Old Nonpareil; 3, Souvenir du Congrés.—*G. P. St. G.* Nouveau Poiteau.

Names of Plants.—*J. A. M.* Ruellia macrantha.—*J. S.* 1, Reineckia carnea; 2, Coronilla Emerus; 3, Duranta sp. probably D. glauca. D. Plumieri is commonly used as a hedge plant in India and in the east generally.—*J. C. G.* Cotoneaster frigida.—*Mona.* 1, Eriobotrya japonica (Loquat); 2, Daedalacanthus nervosus (Eranthemum pulchellum); 3, probably Begonia manicata; 4, Muehlenbeckia complexa; 5, Gesnera cardinalis; 6, Paulownia imperialis; 7, Thunbergia erecta; 8, Palisota Baxteri; 9, Panax fruticosum var. Guilfoylei; 10, Oreganum Majorana; 11, Alocasia Lowii.

Walnuts Failing.—*E. W. P.* Although some of the Walnuts appear to have been pecked by birds, others exhibit symptoms of attack by a bacterium. We are unable to diagnose the trouble until an examination has been made of some of the shoots on which the fruits were borne.

Communications Received.—W. G. W.—W. W.—V. S.—D. D. R.—J. C.—W. O. H.—W. F. S.—A. T. J.—A. O.—D. M. G.—G. B.—A. A. J.—C. F. P.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the *Official Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

34,623.—Corney, N. S.—Lawn-mowers. November 13.
34,919.—Hobrough, J. S.—Motor weed-cutting apparatus. November 15.
34,633.—Ross, R. C.—Device for trimming hedges, etc. November 13.
34,157.—Ford, G. S. Napier.—Planting and transplanting devices. November 8.
33,941.—Kollman, W. F.—Seed container, etc. November 7.

Specifications Published.

321,452.—Whetham, W. C. D., Bampier, and Wood, T. B.—Apparatus for cutting and collecting grass and other crops.
321,607.—Edlington, T. E., Wilkinson, W. H., and Edlington and Co., Ltd., J. B.—Mowing machines and the like.
321,290.—Bamford, J., and Bamford, C. J.—Rakes.
Taylor, F. W.—Lawn-mowers.
320,957 and 320,958.—Webb and Co., Ltd., H. C., and Taylor, F. W.—Lawn-mowers and the like.

Abstract Published.

318,909.—Manures. Johnson, J. Y., 47, Lincoln's Inn Fields, London.—(I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany).

The mixed fertiliser described in Specification 236,494 and consisting of urea, ammonium phosphate, and potassium nitrate, the latter of which may be partly or completely replaced by potassium sulphate, is modified by replacing the urea wholly or in part by sodium nitrate, the ingredients being used in such proportions that nitrogen, phosphorus (calculated as pentoxide) and potassium (calculated as oxide) are present in the product in substantially the proportions 1 to 0·6 to 1·5. The potassium nitrate or sulphate may be replaced wholly or in part by potassium chloride. Specifications 30,683/97 and 231,021 also are referred to.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the *Official Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

LUITPOLD.

506,707.—Chemical substances used for agricultural and horticultural purposes.—August Karroth, trading as Luitpold-Werk Chemisch-pharmazeutische Fabrik Luitpold-Werk, Zielstattstrasse 9, Munchen 25, Bavaria, Germany. November 13.

GRANOSAN.

506,872.—Disinfectants for agricultural and horticultural use.—E. I. Du Pont De Nemours and Co., 1,007, Market Street, Wilmington, County of Newcastle, State of Delaware, United States of America. November 13.

MURLAFORM.

506,783.—Chemical substances used for agricultural and horticultural purposes.—Murphy and Son, Ltd., Wheathampstead House, Wheathampstead, Hertfordshire. November 13.

VALLIUM.

504,614.—Barbed-wire fencing, and wire-netting and fencing.—British Ropes, Ltd., 32, Cavendish Square, London, W.1.

THE Gardeners' Chronicle

No.2242.—*SATURDAY, DECEMBER* 14, 1929.

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Supplement Plate.

Stocks at Foxdenton Park, Chadderton.

Average Mean Temperature for the ensuing week deduced from observations during the past fifty years at Greenwich, 40·5°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, December 11, 10 a.m. (Greenwich time). Bar. 29·5. Temp. 52°. Weather, Overcast.

The Behaviour of Plants.

It might seem on first thoughts far-fetched or fanciful to write of the behaviour of plants; but to anyone who studies them there is nothing fanciful or far-fetched in the expression. Plants behave, indeed, in varied and often inscrutable ways. Let the tip of a root touch a hard object, and lo ! the root tip moves away from that object, so that, like a slow worm, it continues to glide its way through the soil. Pinch off the growing point of a young seedling Bean or Pea, and the odds are that a dormant bud in the axil of each of the cotyledonary leaves begins to grow out, so that there are presently two shoots instead of one. Yet had the main shoot been left alone neither of the cotyledonary buds would have ever grown at all. Such facts as these—and they could be multiplied a hundredfold—give much occasion for thought. Yet until recently the thought which such facts had occasioned remained extremely barren and, like barren thought, generally found expression in copious words. Now, however, knowledge, which so long had lingered, begins her slow approach. The instance of the developing cotyledonary buds may serve to illustrate the direction from which knowledge is making her way. It is, of course, easy to suggest reasons why the buds in the axils of leaves should have their fate—their life or death—determined by the main shoot. The most usual "explanation" used to be that the main shoot absorbed so much of the available food materials that the little left to the cotyledonary buds sufficed merely to keep them alive and provided nothing for their growth. The fact that if only the terminal bud of the main shoot is removed, and the rest of that shoot with its leaves is left, the same result is obtained, could also be explained by the assumption that it is the terminal bud which gets all the food materials. But since assumptions are generally false, it is as well to cultivate a habit of respectful doubt towards them. Nevertheless, the doubt must be what Huxley used to call "active scepticism." The doubter must suggest an alternative. That is sometimes easy. In the present case, for instance, it is not difficult to imagine that the apical bud of the main axis exercises in its own interest a veto on the growth of the cotyledonary buds; like an eastern potentate who slays his rivals to keep himself king. If so, the veto might be exercised in one of two ways. Either, in spite of all appearance to the contrary, the plant has a sort of nervous system and is able to send messages along nerves from one part to another; or else the messages which the plant transmits from one of its members to another are not of the nature of nervous impulses, but chemical in kind. Quite recently,* Mr. R. Snow, of Magdalen College, Oxford, has shown that the latter alternative is probably the correct one. He treated young seedlings of Broad Bean Johnson's Long Pod in the following fashion. The main stem (epicotyl) of the young seedling was cut off. The cotyledonary buds grew out and formed each a lateral shoot. From such seedlings with lateral shoots of nearly equal length one of these shoots was cut off above its second leaf and one bud was removed from the axil of one of these leaves, so that the shoot, with its head, had only one bud and that a lateral. This bud failed to grow week after week. The apex of the intact lateral shoot would not let it. So the question arose, how does it stop the lateral from growing ? If the stopping or inhibition is of nervous origin, cutting through the lateral just below the bud will effectively stop the passage of any nervous impulse; so also will killing a length of stem below the cut, and the latter method has the advantage over the former that it still leaves the wood vessels connecting the lower with the upper part of the injured stem. Accordingly, Mr. Snow killed by means of a hot glass rod about one-sixth-of-an-inch of the stem just below the axillary bud. In one half of the experiments the terminal bud of the other lateral shoot was left intact, and in the other half it was removed. The result was startling. The lateral bud just above the dead stretch of stem grew twice as fast when the apical bud of the other shoot was removed than it did when that bud was left intact. Therefore, it follows that the intact apical bud sends down a chemical substance which, passing through living tissue, reaches presently the burnt dead zone. There it is not stopped. The hormone exudes into the wood vessels, passes up with the transpiration stream into the living tract above, reaches the bud and holds up its development. Remove the apical bud and the restraining chemical message is no longer despatched, and so the lateral bud is free to grow. It is probable that all those wonderful facts of balanced growth and development which plants accomplish casually every day of their lives are brought about by means similar to those whereby the apical bud says to the lateral—thus far and no farther !

Our Supplement Plate.—The illustration presented as a Supplement Plate with the current issue represents a large border of Stocks which was a feature at Foxdenton Park, Chadderton, Lancashire, during the past season. This display attracted many thousands of visitors. Foxdenton Park is only six acres in extent and is under the control of Mr. Holland, Parks Superintendent to the Foxdenton Urban District Council, and is a wonderful example of cultural skill and patience as it is situated in the midst of hundreds of tall mill chimneys. Six years ago it was merely an untidy bit of land, now it is a lovely garden. Mr. Holland makes a special feature of Stocks, many kinds of hardy and half-hardy annuals and Dahlias. The park contains bowling greens and a natural dingle and ornamental water.

The "Gardeners' Chronicle" Almanac for 1930.—The preparation of our Almanac for 1930 is now proceeding, and as we are anxious to include so many dates of horticultural exhibitions and meetings as possible, the secretaries of horticultural, botanical and kindred societies are invited to send us the dates of their fixtures for the coming year, to reach us on or before December 31, 1929.

A Hybrid Poppy.—At the late November meeting of the Linnean Society, Mr. W. C. Worsdell exhibited a dried specimen of a hybrid Poppy. He stated that the plant was discovered in a garden at Ashford, Kent, in July, 1929, and cannot be matched with any known species. That it is doubtless a hybrid is supported by the fact that, although capsules are formed, no seeds are produced. The present view is that it is a cross between Papaver somniferum and P. Rhoeas, both of which were abundant in the garden. The plant is intermediate in several ways between those two species, *e.g.*, it is sparingly hairy, whereas P. somniferum is glabrous and P. Rhoeas is very hairy. The foliage is glaucous, but is more deeply cut than is usual with P. somniferum. The peduncle bears appressed hairs, as in some varieties of P. Rhoeas. The flower is scarlet, as in P. Rhoeas. The influence of the last species is also shown by the overlapping lobes of the stigma, whereas those of P. somniferum do not overlap. The appearance of the plant when growing was that of an Opium Poppy bearing scarlet flowers; this colour is unknown in this species. No published description of such a hybrid has been seen, but only the bare statement in Fedde's Monograph in Engler's *Pflanzenreich* that such have been artificially produced.

Preservation of Fruits and Vegetables.—In seasons when fruits and vegetables are plentiful, it is often desirable and economic to preserve some for use at other times of the year, and with a view to instructing fruit and vegetable growers in general as to the best methods whereby this end can be attained, the Ministry of Agriculture has issued a valuable booklet entitled "Domestic Preservation of Fruit and Vegetables," (Miscellaneous Publications, No. 69, price 1s. in paper cover, 1s. 6d. quarter-bound) which may be obtained at the Ministry's offices, 10, Whitehall Place, London, S.W.1, and should prove of value to all who grow fruits and vegetables, or are able to obtain them cheaply. The publication has been compiled, at the request of the Ministry, by the workers at the University of Bristol Research Station, the various methods and recipes given of those found most suitable only after repeated experiments; only simple methods of preservation, which do not entail the use of chemicals or dyes and can be carried out in the ordinary household, are given. The principles of fruit and vegetable preservation are dealt with briefly in the opening chapter. The various causes of spoilage—yeasts, moulds and bacteria—are discussed, also the chemical effects of preservation, the process of dehydration (removal of water), and the chemical preservative actions of sugar, salt and vinegar. Chapter II deals with fruit canning, the selection and preparation of the different fruits being discussed very lucidly, and the methods of canning described in detail. The various essentials of successful fruit bottling, with the best methods of procedure, are explained in Chapter III, and the succeeding chapters are devoted to jam-making from fresh fruits; fruit jellies; fruit syrups; candied, crystallised and glacé fruits; the preservation of vegetables by canning and bottling: the drying of fruits and vegetables as a means of preservation: and the making of chutneys and pickles, so it will be seen that the whole subject of fruit and vegetable preservation is dealt with in a comprehensive and concise manner. Numerous recipes are given for each subject, and the booklet is well illustrated with excellent diagrams and photographic reproductions.

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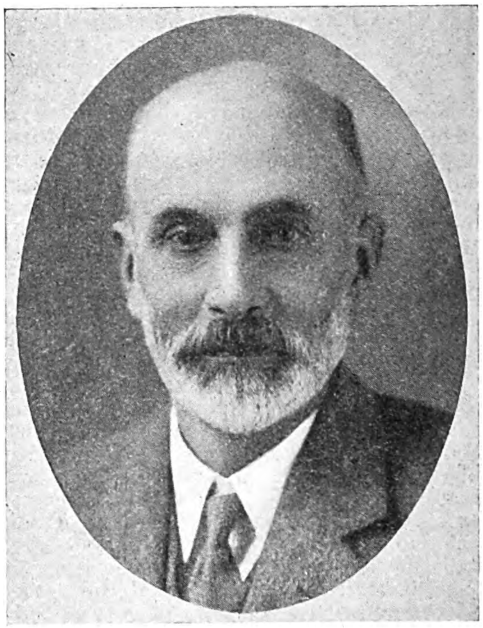
* "The Transmission of Inhibition through Dead Stretches of Stem, by R. Snow. *Ann. of Bot.*, XLIII, No. CLXX, April 1929.

Christmas Shopping.—Most kinds of shopkeepers understand the psychology of Christmas shopping, but horticultural traders—florists excepted—do not appreciate the fact that a seed shop pleasingly decorated, especially if the weather is fine, may prove a great attraction to the general public and create business. Messrs. James Carter and Co, of Raynes Park, fully appreciate this natural tendency prior to Christmas time, consequently they provide unusually attractive horticultural displays in the windows of their London shops in Regent Street and Cheapside. At Regent Street the arrangement of Heaths and Ferns, bulbs and bowls, horticultural pottery of many beautiful kinds, gnomes, Fir-cones made to resemble quaint birds, Lavender sachets, pigmy trees, and miniature Japanese gardens, creates an attraction that is irresistible; to stop and look is to enter, to enter is to buy. In the basement are additional attractions in the form of sundials, more gnomes, garden ornaments of many kinds, and flower bowls in great variety and beauty, among which the clouded amber glassware, the Minton ware and the Dutch designs are so intriguing that the desire to possess some of these works of art overcomes all other considerations.

International Rose Competition at Barcelona.—We learn from the continental horticultural press that no fewer than ninety-two varieties of Roses were sent in for the first international Rose competition to be held at Barcelona, Spain. The authorities of the Bagatelle competition, which has been established now for many years, will have to look to their laurels, as only thirty-six new varieties figured in the Bagatelle Rose trial lists this year.

Jubilee of a Dutch Nursery.—It is just fifty years since the foundation in Boskoop, Holland, by H. den Ouden—father of the present proprietor—of the well-known Old Farm Nurseries. Strawberries were originally the principal product, with fruit trees, ornamental shrubs and Conifers as additional items of cultivation. In 1896, Mr. P. den Ouden, the son of the founder, became associated with his father in the business, and the scope was enlarged to include Rhododendrons, Azaleas, Clematises and other subjects; glasshouses were erected, and the firm began to export abroad. In 1898, the founder retired, but the business continued to expand, especially in its export trade, which soon became very active with Great Britain, North America, Germany and Belgium. The American regulation known as "Quarantine 37," which was passed about 1917, had the effect of almost destroying the carefully built-up trade with the United States, but, in compensation, export to Canada and to British Columbia increased considerably. A speciality is now made of dwarf and other Conifers, of which great numbers, planted before the war, are coming to perfection. Rhododendrons and Azaleas are still cultivated on a considerable scale, and the firm also specialises in Phloxes, Irises and in Chinese, Japanese and single-flowered Paeonies, of which 60,000 are grown every year. Another subject grown is Gypsophila paniculata var. Bristol Fairy, of which a large field in full bloom makes a very beautiful sight. Mr. den Ouden is very particular about nomenclature in his catalogues, and is a member of the Nomenclature Committee of the Netherlands Dendrological Association. To celebrate the Jubilee of his firm, he has brought out a fine catalogue in English. Mr. H. den Ouden, son of the present proprietor, is a frequent visitor to this country, and is well-known to commercial horticulturists; he is an accomplished linguist and has travelled extensively in European countries.

Mr. H. H. Mills.—For the past eighteen years, Mr. H. H. Mills has held the post of gardener to Hugh Morrison, Esq., M.P., and Lady Mary Morrison, at Fonthill House, Tisbury, and during that period the flower garden and pleasure grounds have been re-modelled, this work being rendered necessary by the building of a new manor house. A feature of these gardens is the extensive use of climbing plants, and such subjects as lend themselves to training against walls and fences; purely ornamental plants are usually alternated with fruit trees, and this unusual arrangement adds to the utility of the garden without detracting from its beauty. Mr. Mills is a native of Northamptonshire, and as his father had served at Castle Ashby, Margam Park and Calderstones, it was not surprising that the son became a gardener. He commenced his gardening career at Mintern House, Dorchester, under his father, and afterwards applied himself to landscape gardening for a period before becoming foreman, in succession, at Milton Abbey and Sherborne Castle. His first position as head gardener was at Pyt House, Tisbury, Wiltshire, and he subsequently held similar positions at Rushmore, Gweenyfed Park and Holmwood Park, before taking up his duties at Fonthill House. Mr. Hills is a first-class gardener, and is especially expert in the cultivation of hardy fruits. Apart from his duties at Fonthill House, Mr. Mills interests himself in village life, is Secretary of the Tisbury and District Beekeepers' Association (he is an ardent bee-keeper), and a member of the Committee of the Wiltshire Horticultural Growers' Association.



MR. H. H. MILLS.

The Largest Davidia.—The following communication from Mr. G. Brooker, Buckhold Gardens, Pangbourne, will be of interest to many readers who cultivate Davidias:—"In your issue of May 18, 1929 (p. 366), M. Correvon stated that there was a very large specimen of Davidia involucrata in M. A. Gérard's arboretum at La Fosse (Loir et Cher), planted in 1906, and thirty-eight feet tall. We have a tree, which was measured last week (December 2), with the following results:—Height, forty-two feet; approximate spread of branches, forty feet; trunk at ground-level, three feet three inches; trunk at three feet from the ground two feet five inches: first bough, one foot three inches from the ground. This tree was planted about 1902, and this season it carried between four hundred and five hundred blooms, but not more than eighteen nuts were found at the time of leaf-fall."

Legacies to Gardeners.—The late Theodore Pim, Esq., of Snowdenham Hall, Bramley, Guildford, bequeathed £800 and a life annuity of £70 to his gardener, Mr. A. J. Joy; £250 to each of six members of the garden staff; £100 to one member, and £50 each to two others.

Sale of Rhododendrons and Azaleas.—Large collections of Rhododendrons, Azaleas, Camellias, Japanese Maples and Magnolias, gathered from all parts of the world, may be seen at The Camp, Windlesham, near Sunningdale, and Messrs. Knight, Frank and Rutley have been instructed to sell them privately in large or small quantities. Amounting to many thousands in number, and in hundreds of rare and varied species, they include 4,000 Chinese, Himalayan and hybrid Rhododendrons, 4,000 Azaleas, 1,000 Kalmias, 200 Camellias, with some hundreds of Andromedas, Hydrangeas, Prunus Pissartii, Maples, Magnolias, Scarlet Oaks, Cotoneasters, Viburnums, and many fine varieties of Pyrus.

Australian Fruit Trade Developments.—Following on the visit of Mr. Harold Ford, Secretary of the Clyde Trust, to Australia, and subsequent negotiations with the principal fruit importers in Glasgow, arrangements were concluded at a conference held at Liverpool whereby direct shipments of Apples will be made to Glasgow next season, instead of via London as formerly. Seven firms have promised to support the scheme and to cope with the fruit requirements of the Glasgow market. Messrs. Alfred Holt and Co. have agreed to put in the service five steamers of the Blue Funnel Line, provided with refrigerated space, to ensure a regular supply of fruits throughout the Australian season. The first steamer (S.S. Nestor) is due to arrive in the Clyde about April 25, and the others will follow at fortnightly intervals. Producers in Australia and Tasmania attach great importance to the scheme, as Glasgow is one of the largest fruit distributing markets in this country, serving as it does the whole of Scotland and the north of England.

The Need for Practical Forestry.—Colonel W. Stewart Fothringham, Murtly Castle, delivered his presidential address to the members of Edinburgh University Forestry Society on Thursday, November 21, when he chose for his subject, "Some Ramblings on Practical Forestry." In the course of his observations he impressed upon his audience that the very best instructors they could get were the trees themselves. It was true that trees were dumb, but they had a way of expressing their appreciation of the way in which they had been treated which was easily read by the trained eye. Observation and experience were the surest roads to success in practical forestry. In Great Britain they had always been ready enough to cut down timber and make the best use of it, but they had not hitherto bothered themselves to grow timber, which was absolutely necessary. There had always been a few men in this country who had devoted their time and attention to forestry, and found it a most absorbing study and one which never came to an end. They had been a small band who had never turned back and were thoroughly enthusiastic. They would have followers, and he hoped the followers would be a great deal more numerous than the leaders themselves. At the dinner which followed, Professor E. P. Stebbing, in proposing the toast of "Forestry," said he had received a letter from the Colonial Office pointing out the deficiency in numbers of qualified men who had presented themselves for selection for appointment last July, and asking how many there would be next year. He was not able to hold out high hopes for 1930 or 1931, but was able to say that they had a much stronger body of first year students. At the present moment the yearly growing and expanding Empire Forestry Services were unable to obtain the men they required, and certain services were actually being delayed in necessary expansion because the number of qualified men was short of the demand. That being so, he appealed to the press to give their assistance in ventilating this matter in order that all classes in the country might be made acquainted with the present situation.

Gift to the Royal Gardeners' Orphan Fund.—At a recent Court Meeting of the Worshipful Company of Gardeners, under the Master, Mr. Edward Sherwood, it was decided to give the Royal Gardeners' Orphan Fund an additional holding of three-and-a-half per cent. Conversion Loan Stock, so as to increase the allowance of the orphan provided for by the Company from the original 5/- to the 7/6 per week which the Fund now makes to the children under its care.

The Harvard Botanic Garden.—We learn, through an American contemporary, that by a recent order of Dr. A. Lawrence Lowell, the President of the Harvard University, the Harvard Botanic Garden, probably the oldest institution of its kind in America, has ceased the horticultural activities which it has carried out for a number of years, and will in future be used exclusively by the department of botany for scientific purposes, with Dr. R. H. Woodworth in charge. The Harvard Botanic Garden was founded in 1807.

Big Sale of Scottish Standing Timber.—Messrs. A. and G. Paterson, of Glasgow, Aberdeen, etc., have just concluded with Lord Forres the purchase of some five hundred acres of standing timber on his Lordship's Glenogil estate in Forfarshire. The deal was carried through by the Landowners' Co-operative Forestry Society, Ltd., Edinburgh, who acted for Lord Forres. The trees consist principally of finely-grown mature Larch, the quality of which is excellent, as is invariably the case in the northern part of Scotland. Included also are Scots Fir and a remarkably fine stand of Norway Spruce grown at an altitude of 850 feet. The latter are now sixty-four years old, and when measured in 1920 gave a mean height of seventy-two feet and a mean quarter-girth of nine-and-a-quarter inches. It was computed there were then about five hundred stems to the acre, with an overbark volume of 10,000 cubic feet. Messrs. A. and G. Paterson have for over a hundred years taken a most prominent part in the home timber trade of Scotland, and there are very few wooded estates on which they have not conducted felling operations, and with their travelling saw-mills have turned to commercial uses vast tracts of Scottish woodlands. It is understood the transaction will mean work for a large number of men for the next seven years.

National Sweet Pea Society.—This special flower Society has again arranged two fixtures for the coming year. The Annual Show will be held in the new Horticultural Hall, Westminster, on July 8 and 9, while the Provincial Show is to be held at Southsea, in conjunction with the Annual Show of the Portsmouth Horticultural Society, on July 23, 24 and 25, 1930.

British Wood Preserving Association.—A British Wood Preserving Association, whose object will be to spread knowledge of methods of wood preservation with a view to preventing wastage of timber supplies, was formed at a meeting held at the Hotel Metropole, London, on December 3. Among those attending the meeting were representatives of several Government Departments, the several Schools of Forestry and Forestry Societies, the Central Landowners' Association, the Timber Trade Federation of the United Kingdom, many firms engaged in wood preservation or the manufacture of wood preservatives, and a number of estate owners. Unfortunately, a meeting of the Council of the Royal Horticultural Society fixed for the same afternoon, prevented that Society being represented. The Association was formed on the proposition of Lord Clinton, late Chairman of the Forestry Commission, and among others who spoke in support of the formation of the Association, in addition to Sir Harold Boulton and Sir James Calder, at whose invitation the meeting was called, were Colonel Sir George Courthorpe, M.P., a member of the Forestry Commission; Sir Peter Clutterbuck, Chairman of the Empire Forestry Commission and late Inspector-General of Forests to the Government of India; Mr. C. J. Brown, of the L.N.E.R. Engineers' Department; Mr. C. Le Maistre, British Engineering Standards Association; and Mr. Bryan, of the Forest Products Research Laboratory. Sir George Courthope said that the Forestry Commission would welcome the formation of the Association, and he hoped that it would be possible for the Association to provide readier access to preserving plants for home-grown timber, which at present is severely handicapped in that respect in comparison with imported timber. Sir Peter Clutterbuck, referring to the shortage of soft-wood supplies, said:—"It is not generally realised that if we can make wood last longer by adopting preserving methods, we shall be doing as much good as would be done by increasing our supplies of timber. That alone is an enormous justification for the Association." Lord Clinton, referring to the possibility that by the use of preservatives certain timbers which are now unpopular might be made available for commercial use, said: "You can confer no greater boon upon the producer, the forester, of this country than by doing something of that kind." A temporary Committee, representing a number of interests, is being formed to draw up the constitution, etc., of the Association, and will report in due course to a General Meeting. The temporary offices of the British Wood Preserving Association are at 166, Piccadilly, W. 1.

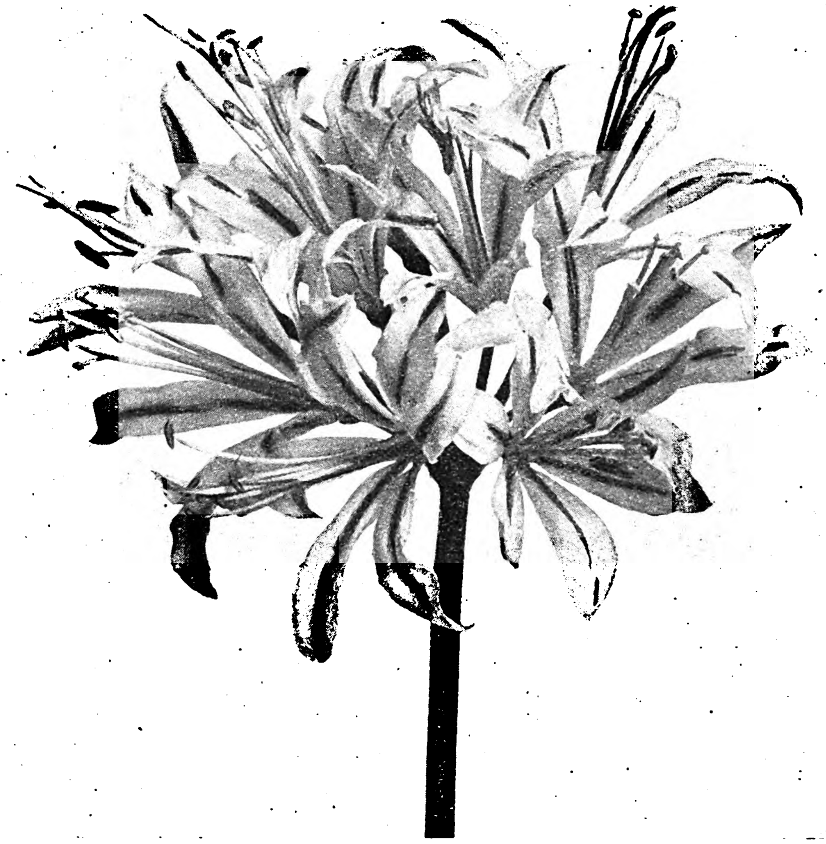


FIG. 209.—NERINE ATTAR.

(see p. 465.)

Honour for Professor Augustine Henry.—We are glad to learn that the Academy of Agriculture of France has honoured Professor Augustine Henry, of University College, Dublin, by electing him a Corresponding Member in recognition of his services to forestry. We may remind our readers that in addition to his work on forestry and his association with the late Mr. Elwes in the production of *The Trees of Great Britain and Ireland*, Professor Henry was a most successful collector of plants in China, whence, some thirty years ago, he discovered about a thousand species new to science, many of which are now in general cultivation.

Appointments for the Ensuing Week.—MONDAY, DECEMBER 16: Harrogate and District Horticultural Association's meeting; National Chrysanthemum Society's Floral Committee's meeting. TUESDAY, DECEMBER 17: Winchester Horticultural Society's meeting. THURSDAY, DECEMBER 19: Newcastle and District Horticultural Society's meeting; Ipswich Gardeners' Association's meeting. SATURDAY, DECEMBER 21: Leeds Paxton Society's Flower Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Botanical Names for Novelties.*—We have had the misfortune, it seems, to hurt the susceptibility of a respectable German botanist. In our number for April 22, of the present year, we presumed to criticise the "bad German habit of attaching to every supposed novelty a long Latin description, four-fifths of which are superfluous." At this Dr. Steetz, whose contributions to the Botany of the *Herald* called forth the remark, has taken offence. We really had no intention to say anything disagreeable to the learned gentleman; but it was our duty to animadvert upon a pernicious though well-meant practice, which has already rendered systematical botany more chaotic, and infinitely more uninviting than it was when Linnaeus swept away its rubbish; and upon re-perusing the remarks in question, we are at a loss to know in what manner our opinion could have been expressed with greater courtesy, so that our meaning should be unmistakable. Surely Dr, Steetz cannot think himself above criticism; and most certainly we have not regarded him as being beneath it.—*Gard. Chron., December* 16, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

The Cool Orchid House.—Where a quantity of cool house Odontoglossums is grown, graceful spikes of flowers may be had practically the whole year round. Besides the typical forms, many highly-coloured kinds, also the chaste O. xanthotes in variety, together with the brilliantly-coloured and free flowering Odontiodas and closely allied hybrids, are attractive features in collections, especially at this season, both as decorative specimens and as cut flowers; the long, arching spikes lend themselves admirably for such purposes. Numerous flower spikes are now being produced, and where slugs are troublesome, the flowering specimens may be placed on inverted flower pots stood in saucers of water, or cotton-wool may be placed around the bases of the spikes and frequently renewed to maintain a loose surface which prevents the slugs from passing over it. Lettuce leaves, saucers of bran and cut Potatos, may be used as traps, and should be examined for the pests at night. The bases of the spikes should be secured to neat stakes at an early stage, before the lower portions become hard and difficult to keep straight. Ample ventilation should be given during favourable weather, care being taken to avoid cold draughts so much as possible by using the ventilators on the leeward side while strong or cold winds are prevailing. The plants are in various stages of growth, and the object should be to keep them growing steadily and sturdily. Care is needed when affording water to the roots. The very late-potted plants only require small quantities of water poured around the pot rim, while others that are well-rooted, and especially those developing pseudo-bulbs and flower spikes together, need larger supplies of water at the roots each time the compost approaches dryness. After flowering, less water will be required for a few weeks, although long periods of drought should not be allowed. The amount of damping down to be done will depend a great deal on the weather and the aspect and altitude of the houses. In low-lying districts, during mild weather when very little fire heat is used, very little damping is required at this season, sufficient moisture being afforded by the necessary watering of the plants. When fire heat is employed to maintain the necessary temperature more moisture is naturally required to counteract the dryness in the atmosphere. At this season, in most districts, damping once a day is sufficient, but in high and dry districts it will probably be necessary twice a day, especially during windy weather. In smoky districts the outside of the glass will require washing occasionally, especially after thick fogs, in order to secure so much light as possible for the plants. Small thrips are often troublesome on these Orchids and should be keenly sought for and destroyed, as they quickly do considerable damage to the growths and flowers if allowed to remain. A little insecticide should always be kept at hand to cleanse infested growths with the aid of a feather or very small brush. Occasional fumigation on quiet evenings should help to keep the pests in check, but spraying with a solution of an approved insecticide at fortnightly intervals is more effective. This operation should only be done in the forenoon of a dry and clear day.

Pleiones.—As the early-flowered Pleiones, such as P. praecox, P. maculata and P. lagenaria, pass out of flower, repotting may be attended to, removing the soil and most of the roots but leaving a small tuft to secure the pseudo-bulbs in the new compost. Shallow, well-drained pans are suitable receptacles, and a compost of equal parts of A.1. fibre, cut finely, and good fibrous loam, with a little chopped Sphagnum-moss, and sharp sand or crushed crocks to keep it porous, should be employed. Allow sufficient room between the pseudo-bulbs for development, and when potted, place them near the glass in an intermediate house; very little water will be required for several weeks until growths and roots are active.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Fruit Tree Pests.—Fruit trees that were grease-banded early in October, to catch the wingless females of the mottled umber and the winter moths as they ascend the tree trunks, should be examined to see that the bands are in working order. For there is still a month or so in which some of these insects will be on the upward trek. This ascent may occur at any time from the first week in October until the middle of January. The majority, however, are caught on the bands between November 25 and the end of the first week in December. From observations carried out on "banded" Apple trees in an orchard in north Berkshire this season, some one-hundred-and-ten female winter moths were caught on a single band before November 21. During the following eight days, however, four-hundred-and-forty additional female moths ascended and were caught on this same band, which goes to show how very important and effective a measure is this system of grease-banding fruit trees. Some of these insects were examined with the view to ascertaining how many eggs each female was capable of laying, and the average worked out at over two hundred each. Of the caterpillars which attack the leaves of our fruit trees, that of the winter moth is, without doubt, the most serious pest. The females are practically wingless and are obliged to ascend the trunks of the trees to lay their eggs on the twigs and branches. This fact, and the introduction of the "sticky-band," has provided gardeners with a ready means of prevention. It must not be overlooked, however, that grease-banding is useful only against wingless moths and, when applied at this season of the year, will only prevent the two moths mentioned above from depositing their eggs on the branches. To prevent the wingless female March moth from ascending to the branches, the bands should be renewed, or kept in a sticky condition from February until April, as it is during that period that this destructive pest ascends to lay her eggs. There are several very destructive moths, such as the lackey moth, the vapourer, the lappet and the small ermine moth, the females of which either possess wings or, as is the case with one, she rarely leaves the tree. As a preventive measure, grease-banding against these would be futile, but much may be done by observant pruners to reduce the number of these pests at this season.

The Lackey Moth (Clissiocampa neustria).—The eggs of the lackey moth are arranged in single-layer bands, half-an-inch to one inch in depth, around the twigs of the trees. They are placed there in July or August, and remain until the caterpillars are hatched out in the following April. The caterpillars are dark at first, but later become brilliantly striped from head to tail, and have two conspicuous dark spots on a rather large head. The egg bands, when seen, should be cut away, or, if this means the destruction of some important shoot, paint the egg bands with methylated spirit.

The Vapourer Moth (Orygia antiqua).—The eggs of this moth are quite conspicuous as they are generally arranged in a single-layered mass on the old cocoon case in a fork in the branches. This egg cluster may be as large as a penny, irregular in shape, and containing upwards of two hundred eggs. Their removal presents no difficulty. The eggs hatch out towards the end of April, and the furry caterpillars are easily recognised by their having four tufts of creamy-white hairs down the centre of the back.

The Small Ermine Moth. (Hyponomeuta padella).—This pretty moth deposits her eggs in scale-like masses on the twigs of fruit trees during August. Minute caterpillars are hatched out in September, and they spend the winter on the tree. The next spring they become active and enter the developing leaf-buds and flower trusses, causing considerable harm. Later, however, they associate in colonies protected by a silken web which is difficult of penetration by spraying.

The Lappet Moth (Lasiocampa quercifolia).—The caterpillar of this moth is not common, and possibly its great size and length, three to four inches, when stretched along the twigs, make it an easy prey to birds. It is the largest leaf-eating caterpillar we have in our orchards; but although this is so, it often escapes detection in the winter as it can assume the colour of the twig on which it is lying. The four pests mentioned and, of course, the eggs of all the aphidae, can only be controlled by a strong winter wash, such as any of the various forms of tar distillate, during the dormant season, or in spring by spraying the trees with arsenate of lead or nicotine.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Hippeastrums.—These, which are commonly referred to as Amaryllis, may be had in flower over a period of several months by judicious arrangement and forethought. A few of the best specimens should be selected to start into growth now; these should be given a thorough soaking with clear water and then top-dressed with a rich, light compost, after a portion of the old surface compost has been carefully removed. Examine the bulbs for insect pests. Mealy bug is very partial to these plants and, if present, the bulbs should be cleansed with an insecticide after all the loose scales have been removed. Arrange the plants on a mild hotbed, and for the time being very little water will be needed; if overwatered, leaf growth will be made instead of flower-spikes. A moist atmosphere, however, is essential, and if it becomes at all dry the pot should be syringed with tepid water. Seedling Hippeastrums raised this year should be kept growing through the winter in a temperature ranging from 55° to 60°.

Humea elegans.—Young plants of Humea elegans raised from seeds as advised, should be potted on into larger receptacles as they become ready, using a light, open compost for this purpose. The plants should be grown near the roof glass under the coolest possible conditions, and fresh air should be allowed to circulate freely around them whenever the outside conditions are congenial. Humeas should be kept in an even state of moisture at the roots as they are impatient of either extreme dryness or excessive moisture.

Coleus thyrsoideus.—This is one of the most useful of winter-flowering glasshouse plants, especially when timed to produce its bright blue flowers in January, when flowers are none too plentiful. The plants are now developing their flower spikes, and to improve the length of stem and also the brightness of the flowers they should be fed occasionally with liquid manure and soot-water. A temperature of 55° should be found suitable for them, and they should be placed in a light position near the roof glass to prevent the plants becoming drawn.

Allamandas.—These stove or intermediate house plants may now be pruned, cutting the long shoots back as desired. Where no extension of growth is required, cut the growths back to about four buds. At this season the plants should be kept comparatively dry at the roots.

Azalea indica.—To augment the supply of decorative plants early in the New Year, a few plants of Azalea indica that are well set with flower buds may be placed in gentle warmth, although no attempt should be made to force them rapidly.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Early Figs.—Pot trees which were moved under glass as advised last month may now be plunged in a steady bottom-heat and syringed judiciously with tepid water, when their terminal buds should soon show signs of activity. This will justify the maintenance of a rather moister atmosphere and a slightly higher temperature on bright days, but no advance should be made yet on the night temperature. As the trees progress the mean temperature may range from 50° to 55° at night, and about 65° by day, a little higher or lower according to the state of the weather. It is better to err on the safe side than to hurry the trees into growth through the remainder of this month. Established trained trees may now be started with every chance of success. If there is room for a little fermenting material this may be placed loosely around the cubes of compost, and the warmth and moisture from this should soon start the trees into growth. Care should be taken that before applying the fermenting material the compost should be restored to a moist condition by repeated applications of water at a temperature of 85° to 90°. By adopting this mode of starting the roots and shoots simultaneously, and keeping the floors and walls regularly damped, direct syringing, except in the middle of fine days, will hardly be necessary.

Midseason and Late Figs.—If these have not already been pruned, this operation may be done at any time now, and the trees washed on wet days, but not when frost is likely to occur. Top-dressing of the soil and lime washing the walls should follow, and, when all is completed, the houses should be kept dry and airy until after the turn of winter.

Propagation of Figs.—If young Fig plants are wanted, select a few of the ripened shoots and place them in a cool and safe place until the time arrives for rooting them. They root freely with the aid of bottom heat, or failing this, plants may be raised from short, sturdy growths inserted singly in small pots, after being divested of their lower buds.

The Grape Room.—The old method of allowing late Grapes to hang on the vines until March has gradually been superseded by the practice of cutting and bottling the bunches early, for by this method the berries may be kept in a plump and satisfactory state for four or five months. Late vines now have a good three months' rest before them and require a minimum amount of fire-heat. Light is not an absolute necessity for the Grapes in store, but should be admitted if the berries damp, which, however, does not often occur if the room is dry and a temperature of about 45° maintained, with ventilation to dispel any moisture. Loss of water in the jars, especially for the first few days, should be made good, and any faulty berries removed.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Sweet Peas.—The ground for next season's Sweet Peas should be prepared so soon as possible. Various methods of soil preparation are adopted. Some trench the entire area, while others simply prepare the actual sites where the clumps are to be planted. Open and prepare wide trenches if it is proposed to grow them in lines. Whichever method is practised, deep and thorough cultivation is essential. The ground may be trenched or bastard trenched, according to the condition it is in. If it has been under cultivation for a long period, the second and even the third spit ought to be quite good, and trenching should be adopted; if, on the other hand, it is of a wet, cold, clayey nature, bastard trenching will be best. Incorporate plenty of well-decayed manure as the work proceeds, putting the first layer well down so that the plants may derive full benefit from it when they become established. If the method of taking out holes or trenches is adopted, it is advisable to open them so soon as possible, giving a good dressing of manure in the trench after the bottom has been deeply broken up with a fork. Allow the trench or hole to lie open during the winter months so that the soil which is to form the growing medium may receive the full benefit of the action of wintry weather. This latter method has a distinct advantage in that decayed loam or other suitable compost may be spread along the sides of the trench and can be readily mixed with the staple soil as the trench is being filled in early spring in preparation for sowing or planting.

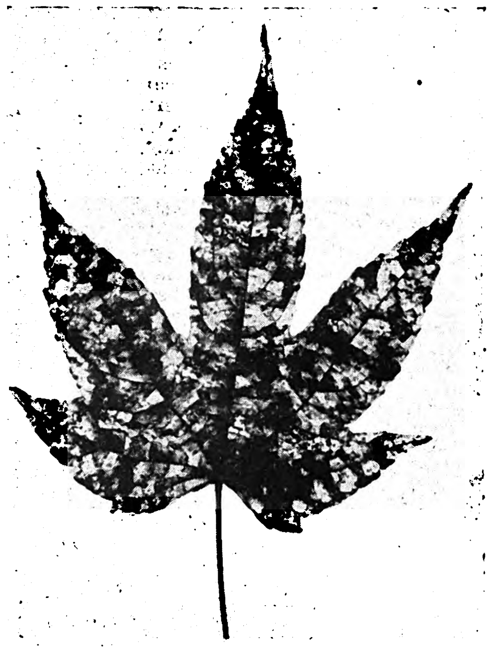


FIG. 210.—ABUTILON THOMPSONII.

(see p. 468.)

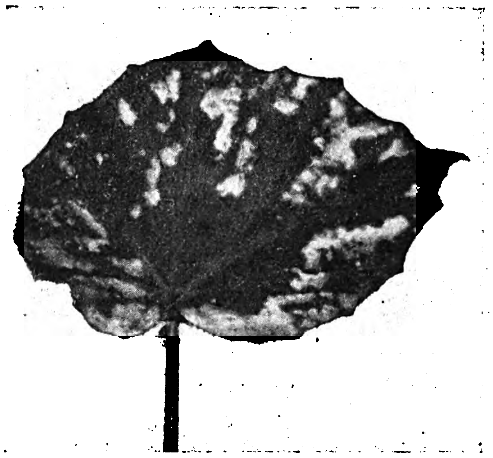


FIG. 211.—BEGONIA MANICATA VAR. VARIEGATA.

(see p. 468.)

Flower Beds.—Any beds that are to be vacant during the winter should be dug at the earliest opportunity and the soil left rough, so that frosts may prove beneficial to it; this applies particularly to soil of a heavy texture. Manure the beds, if necessary, according to what they are to be planted with during the coming season.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Asparagus.—Where the growths of Asparagus have still to be cut down, this should be done at once, the beds edged, and then mulched with well-decayed manure. Only a moderate coating should be given as if laid on the beds too thickly the soil will lay cold and damp through the winter. Young Asparagus plantations should also be cleaned and lightly mulched.

Herbs.—Roots of such herbs as Mint and Tarragon which are required for forcing should now be lifted, packed in boxes, and after being thoroughly watered, placed in moderate heat.

Vegetables in Store.—Where root crops have been in store for some time, they should be inspected, and any growths on such subjects as Beetroot and Carrots rubbed off. Potatos, although apparently quite sound when placed in the store room, should also be sorted and any decayed ones removed, or others may become affected. A few "seed" tubers for early forcing may be brought into the light. Ten-inch pots are suitable for forcing them in, and should be half-filled with a compost of good loam and a little leaf-mould. Having set the tubers, the pots should be placed in a house with a temperature of 50° to 55°; if the temperature is higher, the haulm will become thin and drawn and a poor crop will result. Heated frames may also be employed for forcing Potatos, but plenty of covering material will be required as protection from frost.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq. Rosemount, Monkton, Ayrshire.

Ground Operations.—Although the ground in many cases may be much too wet for working, much useful work can be carried out in improving lawns, pleasure grounds, grass edgings, etc. On the lawns there may be hollows to fill up or mounds to remove, and this work should be attended to. If large areas have to be dealt with, the grass should be carefully cut and stacked while the filling in or removing is proceeding. Ashes prove a very suitable material for raising low areas on lawns, and should be used in preference to soil, and when employed work can be proceeded with even during wet weather. When raising small areas on lawns it is only necessary to cut the grass with an edging iron and roll it back, replacing it after filling the depression with suitable material, and making it quite firm. Grass edgings often become sunk in places, and these may be put right by raising the turf with a spade, packing ashes or soil beneath and beating it level.

Planting Shrubs.—Any planting or rearranging of shrubs may be done when the soil and weather conditions are suitable. Deciduous shrubs of all kinds may be moved with impunity while at rest, and many of the commoner evergreens as well, but with the finer or rarer evergreens it is not advisable to move them until growth is started in April or May; this applies also to such hedging evergreens as Hollies and Yews.

The Rock Garden.—Hardy as most rock plants are, many of them suffer severely during our erratic winters. They seem to languish for the comfortable blanket of snow to which they have been accustomed, and perish in our alternating rains and frosts. Those of a downy or hairy nature at least should have a sheet of glass or slate placed over them to ward off dampness, and if well mulched with lime, granite or even whinstone chips, should benefit greatly. It is a mistake to lift rock plants and winter them in frames, as is sometimes done, as the root systems of most alpines do not lend themselves to transplanting, so that, even if the plant survives, the check it receives renders it incapable of flowering in a satisfactory manner. Where large patches of Androsaces, Onosmas, Raoulias, etc., are grown, a sheet of celluloid fitted into a light frame of wood makes a capital protection from rain, for if kept dry, these plants should survive the winter well.

TREES AND SHRUBS.

VIBURNUM RHYTIDOPHYLLUM.

THIS striking Chinese shrub was introduced by Wilson in 1900. It is well worthy of a place in all gardens where hardy shrubs are appreciated and should prove a handsome feature all through the year.

The ovate-oblong, deeply channelled leaves are dark, glossy green above, and covered with a dun-coloured, woolly tomentum beneath; they may be up to seven-and-a-half inches in length, and from one inch to two-and-a-half inches in breadth; as they are evergreen in character they retain their effectiveness throughout the year.

The flowers are of a yellowish-white hue, and are carried well above the foliage in terminal corymbs, each four to eight inches across. The buds are formed in the autumn, and they remain throughout the winter in a partly developed state, and expand during May and June. The flowers are followed by oval fruits which, during the autumn, are of a rich shining red colour, and during the month of September are particularly attractive.

Viburnum rhytidophyllum, in addition to making a good bush in the open, is an excellent subject for growing as a specimen plant against a warm wall. *T. H. E.*

VITIS STRIATA AND V. VINIFERA VAR. PURPUREA.

FOR gardens of limited area, or places too small to accommodate the greater Vines, Vitis striata and V. vinifera var. purpurea can be recommended. The former, also known as Ampelopsis sempervirens, is very similar in many respects to V. inconstans var. Veitchii, but I have not found it nearly so vigorous as that excellent climber, and it differs from the latter in being evergreen. I bought V. striata for covering an ugly wall no more than about eight feet in height. This it did with commendable speed and more, but, not being hardy, it is cut back by frost to about half its height every winter. The exceptionally severe frost of last March killed it to the ground, but it was soon up again and managed to cover its allotted space before the end of summer.

V. striata is a native of Chile and Brazil. It makes a number of slender, ramifying growths which are amply furnished with leaves averaging rather more than three inches across. These are composed of five almost stalkless leaflets which are neatly tapered and toothed and of a dark glossy green. The effect is that of a climber luxuriantly foliaged with rather small, daintily-cut leaves which, the winter being kind, retain their fine-toned green the season round. This is obviously a Vine for a warm wall. Even if it should escape beyond its given space, it is easily kept within bounds, and the fact that it is evergreen in a genus so largely composed of deciduous species is alone sufficient to bring it into notice. The young growths, I should add, are a bright red, and although the plant is "self-clinging" it needs something for its tendrils to grasp.

V. vinifera var. purpurea, the Teinturier Grape, is a delightful replica of the common Grape vine reduced to less than half its size and richly coloured. That this variety may be more robust in some soils I have no doubt, but a specimen I have has not exceeded ten feet in height in as many years. From spring to autumn the beautifully lobed and cut leaves which adorn its wine-red branches are a delicate green, generously suffused with claret-purple. This colour deepens towards autumn when, for a month, or even two months, the entire foliage is stained with a crimson-purple of extraordinary intensity. Grown on a pergola, pole or arch so that the leaves may be seen against the light, their colour becomes a vivid blood-red of a shade so brilliant that they have few rivals in their own hue, and none whose colour prevails over so long a period. Here, at any rate, this very ornamental vine is one of the earliest shrubs to show autumn's tints, and it is one of the last to shed its leaves. It may be that a rather poor, stony soil tends to intensify the leaf colour in my plant as well as to retard its growth, but I have seen it giving admirable effects under other conditions. The little clusters of plum-red Grapes which this vine will bear after a fine summer lend an additional touch to its decorative value, especially when the shrub is used on an arch so that the fruits may be seen from below.

MYRTUS NUMMULARIA.

THIS admirable little shrub was among the last things I received from that home of many good and rare treasures, the old Comely Bank Nurseries, of Edinburgh. It was planted in the open with that doubt as to its prospects which commonly accompanies the planting of Myrtles. But, instead of shrinking from the life before it in a northern home, this New Zealander has never once looked back. The severest winters most of us can remember have failed to inflict the slightest injury upon it and my original plant, now established some four or five years, is one of the heartiest things in the garden.

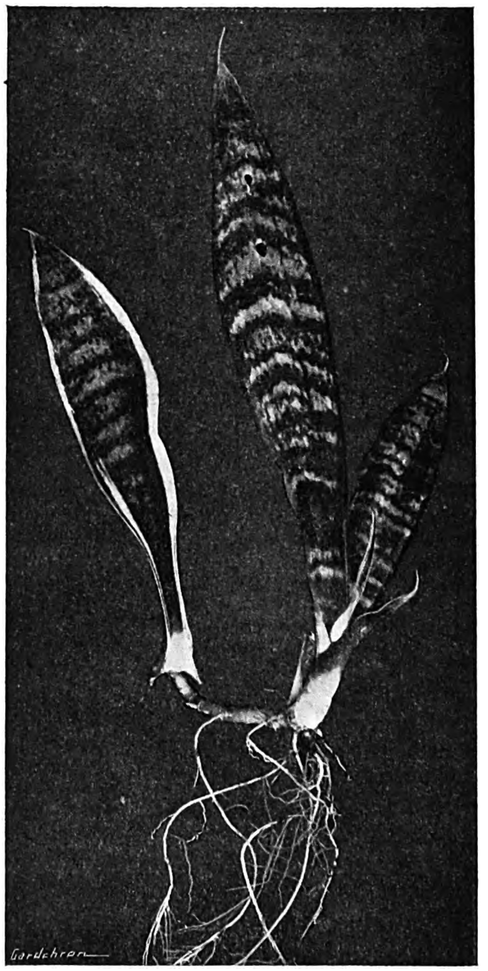


FIG. 212.—SANSEVIERIA LAURENTII.

(see p. 468.)

Myrtus nummularia is a perfectly prostrate, evergreen shrub. Its slender, rather brittle branches and their straight little twigs arranged with an irregular fish-bone angularity, are a bright mahogany-red, and along them are disposed the almost round, leathery, dark green leaves. The flowers appear in summer as fluffy balls of snow-white, perched along the upper sides of the creeping branchlets, and these are followed by globular berries which are white, flushed with pink. Both flowers and fruits have an obviously effective setting in the dark and sullen foliage.

It appears to enjoy a cool, free soil containing plenty of humus. Here it has only a small share of the sun, and to that it seems to be indifferent, since it pushes its adventurous growths into the dense shade of every other plant that it is able to reach. The branches do not seem to root naturally, but they will do so at the invitation of a hair-pin, and the plant strikes readily from cuttings. It seems odd that a rock garden shrub of such obvious charm and ease of culture should still be so uncommon that one rarely sees it in the lists. *North Wales.*

ORCHID NOTES AND GLEANINGS.

EPIDENDRUM ENDRESII.

PLANTS of this dainty species are now developing flower buds at the apices of the new growths, and sufficient water will be needed at the roots to assist the expanding blooms, after which very little water should suffice to keep the roots healthy and the small, Reed-like growths in a plump condition. The chaste flowers keep in perfection for many weeks if care is taken to avoid any moisture collecting on the blooms.

Although Epidendrum Endresii is generally recommended as a cool house plant, it appears to thrive satisfactorily in a light position at the cooler end of the intermediate house, where it should be kept fairly dry at the roots for a few weeks after the flowers are removed, increasing the supply of moisture as fresh growth commences in the spring, when any necessary repotting may be done. For this, well drained receptacles and a compost of three-parts Osmunda fibre to one part Sphagnum-moss, adding broken charcoal or crushed crocks to keep it porous; over-potting should be avoided. The compost should be pressed firmly among the roots, so that water will quickly pass through, otherwise it will soon become spongy and likely to remain saturated for longer periods than is beneficial to the roots; decay quickly sets in under these conditions. Well-established plants require ample moisture at the roots during the growing season, allowing the compost to become fairly dry between each application.

Similar cultural conditions may be afforded the smaller and beautiful flowered E. spectabile, except that this species requires a more exposed position, where the sunlight can reach the whole of the plant and roots after the danger of scorching is passed; it also has rather less water at the roots. *W. G.*

INDOOR PLANTS.

ACACIA BAILEYANA.

THIS plant is one of the most beautiful in the genus, and thrives in the open in several of the exceptionally favoured gardens of Great Britain. In Sussex, it is only possible to grow it in sheltered corners for a few years; a severe frost, such as is experienced once or twice in a decade, either kills it outright or reduces it to a stump, which, although it may sprout into rapid growth during late summer, is the more likely for that reason to be killed the next winter.

While it must be considered unsatisfactory for outside culture in most localities, few plants are better suited for planting out in a winter garden, conservatory or corridor. Even if the temperature falls slightly below 32°, but only for a short period in the early morning, neither foliage nor flowers are in any way damaged.

It may be planted either as a standard or in bush form against a wall, but if in the latter position it should be allowed to spread forward, supported, perhaps, but not stiffly trained. Growing in any good, ordinary loam, its annual growths average from two to three feet in length, well clothed with bipinnate, silvery-blue foliage, which forms a beautiful setting for the golden-yellow blossoms.

A large standard, some fifteen feet in height and eighteen feet in width, growing in a cool house, from which frost is barely excluded, is well known to the writer. It flowers regularly each season, and the cut sprays form a welcome addition to decorative flowers in January. Under ordinary conditions the flowers last for several days, but in heated rooms soon wither.

After flowering the tree should be pruned, and as strong growths from hard wood do not flower satisfactorily the first season, it is good practice to cut back to a fork, saving the shorter branches, which extend during the following summer and form good flowering sprays.

Few plants give less trouble as regards insect pests. In mixed collections white scale sometimes appears on the older wood, but this is easily kept in check by spraying with a solution of nicotine or petroleum soap early in the year. Should the stiffer branches be inclined to press against the roof, a strip of sheet lead rolled around the stems will soon correct this tendency. According to Bailey's *Cyclopedia of Horticulture*, it is sometimes used in the more southern districts of the U.S.A. as a street tree. It is a native of New South Wales and Queensland. *J. Comber.*

ON HERBACEOUS BORDERS.

While not attempting anything of a detailed account of the general management, planting or upkeep of a herbaceous border, or yet to particularise on any one method to be adopted, it occurred to the writer, by virtue of the fact that the construction of new or renovation of existing borders may be under consideration, a few random notes and comments—gleaned from a close personal interest in this most fascinating branch of the profession—may not prove amiss, and possibly be of some assistance to those readers at present engaged in this particular work.

I will take the making of a new border, for after all the remaking is only a duplication of the making, except that the gardener is curtailed in the selection of site.

A herbaceous border, well planned and planted, is a particularly attractive feature of the garden, and can be made interesting and instructive throughout the spring, summer, autumn and, to a lesser degree, winter, while as a source of supply for the decoration of rooms, etc., it is practically unfailable. There are some who object to this "slaughtering" of their beloved subjects, but a discriminate use of the knife in the hands of an intelligent man would leave but little evidence of the "plundering."

The all-important question of site must of necessity be governed by the circumstances attending the particular border under construction, *i.e.*, the primary cause for its construction, the wishes of the employer, and a hundred and one other points that are sure to arise, and can only be met satisfactorily in each individual case. Certainly no form of gardening—at any rate, flower gardening—lends itself so readily, or has been subjected to such a variation of purposes, as the herbaceous border, for borders are to be seen occupying all sorts of positions and aspects. One may be set in turf, another with a background of some kind of evergreen hedge or wall; again, as a "set off" to the centre walks of the vegetable garden; while, on the other hand, they are found facing every point of the compass; in fact, one of the finest borders—in this case a series of borders—it has been my privilege to see, faced and sloped due north. Whatever the position chosen, it should be as open as possible, protected from the prevailing wind and clear of the drip of trees.

Personally, I consider the "ideal" border is one set in turf with an all-round approach, bordered by flags some eighteen inches in width, as this allows the dwarfer and more prostrate denizens at the front to overgrow the flags and break that tendency to "straightness" so often seen when the turf abuts the border. Again, to be thoroughly effective, a herbaceous border should have both breadth and length—twelve feet is none too wide, always provided the length is in proportion, and the environment lends itself to the dimensions—for it is only by a bold display that a true conception of the beauty of such a border can be realised. I well recall having to make an effective display with herbaceous subjects in a border backed by a terrace wall, and only some four feet in width. The result was not a success—it looked too puny and cramped. The attempt was eventually given up, and three definite subjects—Tulips, followed by Antirrhinums, and then Asters—were substituted, with a much more telling and gratifying result.

A good loam is the best medium for herbaceous borders, but by a judicious incorporation of manure and fertilisers any soil can be made suitable, always bearing in mind the somewhat cosmopolitan nature of the occupants. It may be found necessary—indeed, it is desirable—to specially prepare the sites for the choicer plants. There is one point I should like to emphasize—deep cultivation should be the keynote of the preparations. Where there is a sufficient depth of soil trenching should be carried out, breaking up the subsoil as the work proceeds. Should the latter prove unkind and of such a nature as to render trenching impracticable, bastard trenching should be adopted, taking care to incorporate a goodly dressing of suitable manure with the bottom spit, with a view to improving the texture and increasing the state of fertility.

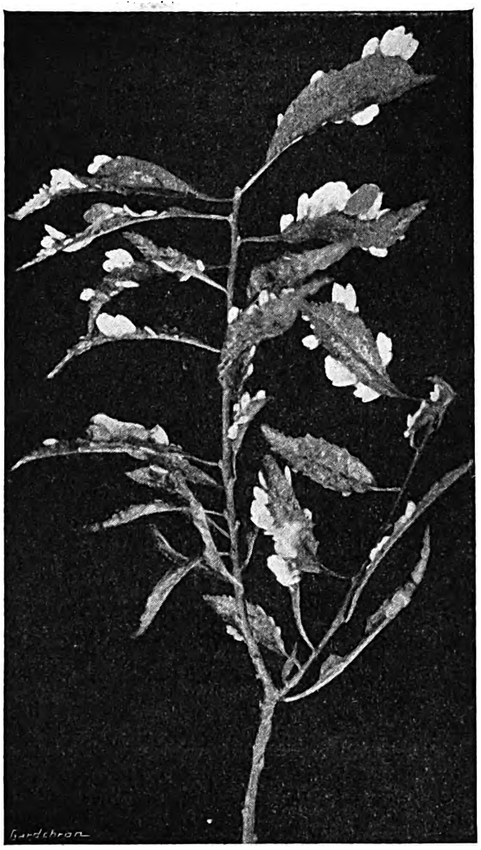


FIG. 213.—PRUNUS CERASIFERA VAR. HESSEI.
(see p. 468.)

Planting may commence so soon as practicable after digging has ceased, for at this season of the year climatic conditions play an all-important part, and it is advisable to push forward the work on all favourable occasions, endeavouring, if possible, to ensure the plants being comfortably settled and established in their new quarters before the advent of the really hard weather. There is much diversity of opinion as to the best time to plant a herbaceous border, viz., autumn or spring, particularly on heavy, clay soils; but I strongly advocate autumn planting, even although this entails the use of some drier planting medium—such as old potting compost—when planting in retentive soils.

It is impossible to treat of the arrangement of a herbaceous border in detail, this being a question of individual taste; but the stiff and formal method of "the tallest at the rear and the shortest in the front" is much to be deplored and discouraged. There is too much of the "prim and precise" atmosphere about it ever to appeal to the true student of unfettered nature. Rather should a suggestion of gentle undulations be the prevailing note—a bold group of tall subjects here, with one of slightly dwarfer stature running into it, and so on, until at the front one would get a group of plants, say, some nine inches to a foot in height, next to a carpeting subject—without any hint of sloping formality. On the other hand, the extreme should also be avoided. There should be no "shutting-out" of a dwarfer, and perhaps prettier group by planting a much taller one directly in front of it.

Two other points need, of necessity, to be taken into consideration—that of colour harmony and a due regard to the time of flowering of each respective group, to mitigate as much as possible the greatest bane of herbaceous borders—a blank period.

Just what to plant in such borders is best left to the discretion of those actually engaged in the work. No hard-and-fast rule can be laid down, as so much depends on the particular circumstances attending the construction of individual borders. Suffice it to state that a diligent perusal of any reliable plant catalogue will reveal a rich store of all classes of plants suitable for the purpose, and it is at this point that the expression "herbaceous" should not be taken too literally, for the ideal herbaceous border of to-day contains a discriminate and intelligent blending of not only strictly herbaceous subjects, but shrubs, alpines and bulbs; while the addition of suitable biennials and annuals, far from detracting from the general scheme, seems only to make this fascinating form of gardening "a thing of beauty and a joy for ever." *T. Wilson, Shugborough.*

FLOWER GARDEN.

DIGITALIS MARIANA.

While on a visit to the Royal Botanic Gardens, Kew, during the past summer, I noted in the herbaceous plant quarters an extremely handsome Foxglove labelled Digitalis Mariana, its country of origin being given as Spain. This Digitalis appeared a very desirable garden plant, but I have failed to find it listed in any seed or plant catalogue, so that it would appear not to be in general cultivation. Moreover, but very few horticultural works of reference contain any notice of it, and those that do, to my knowledge, deal with it very briefly.

The plants at Kew had large, dark grey, downy foliage which in itself was very handsome and the stout, downy stems bore massive spikes of large, creamy-white bells, the whole inflorescence being very striking and about three feet in height.

Bailey makes brief reference to it in *Cyclopedia of Horticulture*, and it is also described in Nicholson's *Dictionary of Gardening*, but, curiously enough, in both these authoritative works the colour of the flowers is given as rose. In the latter work it is described as a perennial, one-foot-and-a-half high, with ovate-oblong leaves, mostly radical and very downy on both sides, and rose-coloured flowers, the corolla being bearded on the lower part inside with long, white hairs, and marked with brownish-red spots.

If the plant seen at Kew, with creamy-white flowers, is not the true D. Mariana, it would be very interesting to know exactly what it is, as it appeared extremely effective—more so, I think, than if its flowers were rose-coloured—and also whether it is perennial or not and hardy in this country. *M. W.*

ALPINE GARDEN.

POLEMONIUM CONFERTUM.

There are two distinct groups of Polemoniums ; the first, tall-growing species, among which the most familiar is P. coeruleum, the old-fashioned Jacob's Ladder, and the second, dwarf species very suitable for growing on the rock garden, perhaps the best-known of these being P. reptans.

P. confertum is a lesser-known member of the latter group, and is certainly one of the most beautiful. It is a dwarf perennial, developing a woody, rhizomatous stock with age, the spreading rhizomes giving rise to tufts of small, sticky leaves with very diminutive leaflets crowded together to give a whorled effect. The foliage has a distinct musk odour and is, in itself, quite attractive.

The honey-scented, rich deep blue flowers of P. confertum are very striking, for they are borne in dense clusters on strong stems six inches or so high, the corollas being narrowly funnel-shaped and about an inch long.

P. confertum is a choice and comparatively rare species from the Rocky Mountains and Sierra Nevada, and is by no means so easy to grow as some of the better-known species. A warm position, shaded from the hottest sun, seems to suit it best, and it requires light, well-drained soil. During the summer, while in active growth, it relishes abundant underground moisture, but it is intolerant of winter wetness, and is liable to perish unless measures are taken to guard it from excessive moisture at this season of the year.

There is a variety of P. confertum known as var. mellitum, and sometimes classed as a distinct species, which has creamy-white flowers produced in a laxer, taller and more leafy inflorescence than that of the type. It has the same distribution as the true P. confertum, and although not so striking, is certainly well worth its place on the rock garden.

HOUSTONIA COERULEA.

By reason of its delicate daintiness and wonderful freedom of flowering, Houstonia coerulea should find favour with all lovers of alpine plants, and no rock garden with any claim to being such should be without it.

The genus Houstonia, which commemorates Dr. W. Houston, a plant collector in the West Indies and Mexico, comprises about twenty-five species, natives of North America, but few of which, however, appear to be in cultivation. Of those that are, H. coerulea is quite the most popular.

In America it is known by a variety of names, among others being Bluets, Innocence, Quaker Lady, Quaker Bonnets and Venus's Pride, all of which are complimentary to its appearance.

It forms dainty, spreading tufts, with small, opposite leaves, and commences its flowering season in May with a glorious display, continuing to flower in a lesser degree throughout the summer. The small, four-petalled flowers, borne singly on very slender stems up to three inches or so high, are of very dainty and charming appearance, being bright pale blue, varying somewhat in intensity of colouring and sometimes with a pinkish tinge, yellow-eyed, and fading paler after passing their prime. There is an attractive white-flowered variety offered by some nurserymen, and well worth a place, although it does not quite equal the type in charm.

H. coerulea is found naturally in meadows and grassy places, which would suggest it should prove a suitable subject for the alpine lawn. On the rock garden it delights in moderately rich but light soil containing small pieces of rock and surfaced with granite chips, with underground moisture throughout the summer but dryer conditions at the roots during the winter. It seems to prefer lime-free soil, and should be planted in positions shaded from the mid-day sun.

Houstonia serpyllifolia is frequently grown on rock gardens and is well worth its place, being slightly freer and taller in growth than H. coerulea and with a violet tinge to its blue flowers, while another not uncommon species is the coarser growing H. purpurea. *Kent.*

AETHIONEMA OPPOSITIFOLIUM.

This interesting Crucifer hails from the mountains of Asia Minor, and is deserving of greater notice than it apparently receives, for it is seldom seen even in the best collections of alpine plants.

It is of a sub-shrubby habit, from one inch to two inches high, forming a compact carpet of attractive glaucous foliage. The individual leaves are thick, smooth and entire, retaining their greyness nearly the whole year round. The flowers are white, suffused with a faint rosy-lilac tint, and are peculiarly attractive against the handsome foliage; even at the time of writing —mid-November—the buds that will give pleasure in May may be seen packed tightly between the terminal leaves.

Although perfectly hardy, this Aethionema delights in a warm, sunny, sheltered position preferably in a rock crevice ; given this, and an ample root run in good loam, it should require little further attention, increasing and proving attractive for at least nine months of the year.

It may be seen to even greater advantage when grown in the alpine house, for in the open the flowers are apt to be damaged by adverse weather. Grown in a fairly deep pan, in a compost of good fibrous loam (well broken but not sifted), coarse limestone chips, a little sharp sand, and one or two pieces of rock wedged firmly around the plant, it should be quite happy if not over-watered. Firm potting is essential.

Cuttings taken in July root easily in a closed frame in fine red sand, or in three-parts coarse silver sand to one of leaf soil passed through a fine-meshed sieve. The rooted cuttings should be ready to pot on into sixty-sized pots in about six weeks, using a compost of two parts loam, one of leaf-soil, and enough sharp sand to keep it open. Grown on in a cold frame they should make good flowering plants for the following year. *J. T. Wall.*

NOTES FROM WISLEY.

The recent heavy rains have hastened the fall of leaves from the deciduous trees and shrubs, so that now very little remains of the brilliant autumn tints which were a feature of the Wisley gardens a few weeks ago. Yet much remains to interest the keen student of nature, even at this drab season of the year.

Berried trees and shrubs there are in plenty—Rosa species, Pyracanthas, Cotoneasters, Barberries, and others—and this season the Holly trees and Thorns are laden with exceptionally heavy crops. It is during the winter months that the evergreen trees and shrubs prove their value as garden ornaments, the Conifers being of special interest; and Wisley is very well stocked with all these.

On the rock garden that gem of Primulas, P. Winteri—a large, long-established colony in the crevices of the big cliff on the margin of the main path along the top of the rock garden—is commencing to brave the winter with its exquisite, powdered, lavender blooms unfolding from the fat, meal-covered rosettes of foliage ; in fact, one plant is already practically in full bloom. It is unfortunate that some visitors to the gardens should abuse their privileges by removing such treasures as these, two of which have been taken during the past year, together with several other gems—Rhododendron repens, for instance.

Although, with the exception of Primula Winteri and Gentiana sino-ornata, which seems loathe to cease flowering, and an occasional out-of-season bloom on other subjects, no flowers are now visible on the rock garden, the various silvery-leaved alpines have a distinctly brightening effect, while the foliage of the invaluable Rhododendron obtusum var. amoenum is richly tinted with scarlet. The older leaves of a large carpet of Saxifraga Geum are also pleasingly tinted with red and orange which, in conjunction with the fresh green of the younger foliage, proves very effective. The alpine house has been set in order for its coming season and contains, with many other suitable subjects, a grand collection of Encrusted Saxifrages.

In the wild garden autumn colouring, in fiery shades of orange, still lingers on the various Vacciniums, and the pink-tinted inflorescences of Pieris japonica and P. floribunda, not, of course, open yet, are very attractive against the fresh green of the foliage, while Pernettya mucronata, so charmingly naturalised at Wisley, is carrying a wonderful crop of fruits, in many shades from pure white to deep crimson.

In Seven Acres there are numerous berried shrubs, especially notable among them at present being the small, yellow-fruited form of Pyracantha Rogersiana var. flava at one end of the large border, and Symphoricarpus racemosus var. laevigatus, near the pond, with striking clusters of white fruits freely borne. Cotoneaster rotundifolia and C. Simonsii are also fruiting well, the former being the most striking and having the added advantage that its fruits are not devoured so readily by birds as are those of C. Simonsii. In this portion of the gardens the numerous trees and shrubs with brightly coloured stems, the Birches, Willows and Cornus sanguinea, especially, are now coming into their own, while the fine specimen of Quercus coccinea, Knaphill variety, continues to retain its foliage, now rich Chestnut-brown in colour. Salvia officinalis var. purpurea and Senecio Greyii are attractive features, also Buddleia Fallowiana with its silvery stems and foliage. The several large trees of Cotoneaster frigida dotted about the gardens are all heavily laden with fruits, while the magnificent specimen of Cotoneaster horizontalis against the wall of the Laboratory is a glowing sheet of scarlet, so thickly are its branches set with fruits.

Naturally, in such an establishment as Wisley, the work of improving and developing is going forward continually, and throughout the past year much has been done in this respect.

In the recently laid-out flower trial garden the large rectangular lawn has been lengthened to make a splendid entrance from the Rose walk, and it now has a broad herbaceous border down each side, at the far end of each being a circular bed twenty-four feet in diameter.

Through the generosity of Mark Fenwick, Esq., the large alpine meadow adjoining the rock garden is being improved greatly by the introduction of large boulders of Sussex sandstone to give the appearance of natural outcrops of rock.

It is, however, at the northern end of the gardens that the greatest alterations have been made recently. The old experimental orchard has now been done away with and in its place a Lilac garden is being formed. All the land has been thoroughly trenched and already over one-hundred-and-fifty different sorts of Lilac have been planted, chiefly in groups of three, and it is hoped to enlarge the collection considerably during the near future. The undulating ground is intersected by broad, sweeping paths which were sown with grass in the early autumn, the main path down the centre being sixteen feet wide and terminating at the Pine plantation, through which it will probably be continued to link up with the broad walk through the so-called Pinetum. The Pine plantation has also been the scene of recent activities. Beds have been made beneath the Pines and planted with hybrid Rhododendrons, and the margin near the river is being devoted to Azaleas ; when finished, a very charming garden should result.

That the Pinetum will ever be a success is open to question ; certainly the majority of the Conifers in it are making but little headway. The broad, mown walk is a great improvement in this quarter, but the bridge across the public footpath is not so delighting to the eye, being very suggestive of the foot-bridges frequently seen spanning railways, canals, etc.

However, the work of developing Wisley—no mean task—is proceeding apace, and much of the work already in hand is of a sound, constructive nature, designed to be of lasting benefit to the gardens.

Finally, there is one task which would appear to be long overdue. I refer to the road leading to the gardens, which is in a shocking condition. True, the visitor with a luxuriously sprung car may not notice its defects, but the numerous pot-holes must be very trying to pedestrians and cyclists, and owners of small cars. Surely, with so much useful work going on inside the gardens, a little labour and expense might well be incurred to make the visitors' approach to the gardens a little less uncomfortable than it is at present. *F.*

PLANTS NEW OR NOTEWORTHY.

TRADESCANTIA REFLEXA.

The genus Tradescantia provides more desirable plants for the stove and greenhouse than for the open border. Few hardy species are found in gardens except T. virginiana and its numerous varieties. These seem to be favourite town plants as, when assisting as a judge in the Garden Competitions organised by one of our great daily papers, I found T. virginicana in many gardens, but it added little to their decoration.

T. reflexa is no stranger, but hitherto I had no opportunity of trying this species until the arrival of seeds from America in 1927. A few plants only were raised, and by a happy chance they were planted near a water tank, and the result was a very surprising one, as I had no idea anything hardy in this genus had any great merit. T. reflexa grew into fine, handsome specimens, as the illustration (Fig. 214) shows, only requiring a wet spot to proclaim itself a really good border plant of particularly elegant habit, and free-flowering to a degree.

It may be described as a three-feet-tall, branching, perennial plant with narrow, glabrous and glaucous leaves which reflex very gracefully; flowers, soft blue, in clusters of four to eight; the plant soon forms a large clump, and is only seen at its best in marshy or very wet ground. Where well grown, it is a far superior plant to T. virginiana, although the shade of blue may not be so fine. This species seems to have a wide range. Britten and Brown, in *The Flora of the Northern States and Canada*, mention that it is found from Ohio to Minnesota, in Florida and Texas. *T. H., Hyde Park.*

NERINE ATTAR, Hort.

This is a new colour-break among the garden section of Nerines, having a bright, clearly-defined, crimson keel running the whole length of the silvery segments.

N. pudica is now represented in most collections by garden forms, and the true N. pudica is rarely seen. It is one of the least conspicuous species in the genus, and carries a darker keel in the lower part of the flower. Some thirty years ago, I used it as a female parent for various garden forms, and found that its progeny bore very large flowers, so far as length of limb and span of flower were concerned, but had neither the compactness nor the breadth of segment of the crosses raised from the N. corusca types. It was one of these large-flowered but spidery hybrids which, crossed again with a garden form in 1907, produced N. Attar.

This variety carries a compact umbel of about ten flowers of medium size and of a faint silvery-blush ground colour, strikingly keeled throughout their length with a bright crimson (Fig. 209). In some flowers this keel is discontinuous in places. All parts of the flowers have a fine sparkle in a strong light. N. Attar is a slow grower, only bearing four leaves, and has thus far proved sterile, but flowers freely in November every year.

It is interesting to see the somewhat obscure keel of N. pudica come out so brilliantly in the second generation of crosses. But it is only one seedling out of many that shows this character in a marked way, and I think it is due to a dissociation of colour cells, a phenomena often noted in various plants, but difficult to explain. Such keels or stripes occur in various Amaryllids, such as the Placeas and Gastronemas. *A. Worsley, Isleworth.*

BULB GARDEN.

TULIPA CHRYSANTHA.

Tulipa chrysantha, so favourably written of by Mr. J. T. Wall (p. 424), promises to become a favourite with those who care for the many lovely species of Tulip now available. It comes from Kashmir, and, through the kindness and generosity of Mr. T. Hay, whose searches for good plants not in commerce have been of great value, I received some bulbs of it in the autumn of 1928. These were planted in a warm border, and the majority flowered last spring and were greatly appreciated. The bulbs were evidently collected ones, but the proportion which gave flowers was excellent. My plants did not vary in colour and were of a good clear yellow. They appeared to be taller than those observed by Mr. Wall and were about nine inches in height.

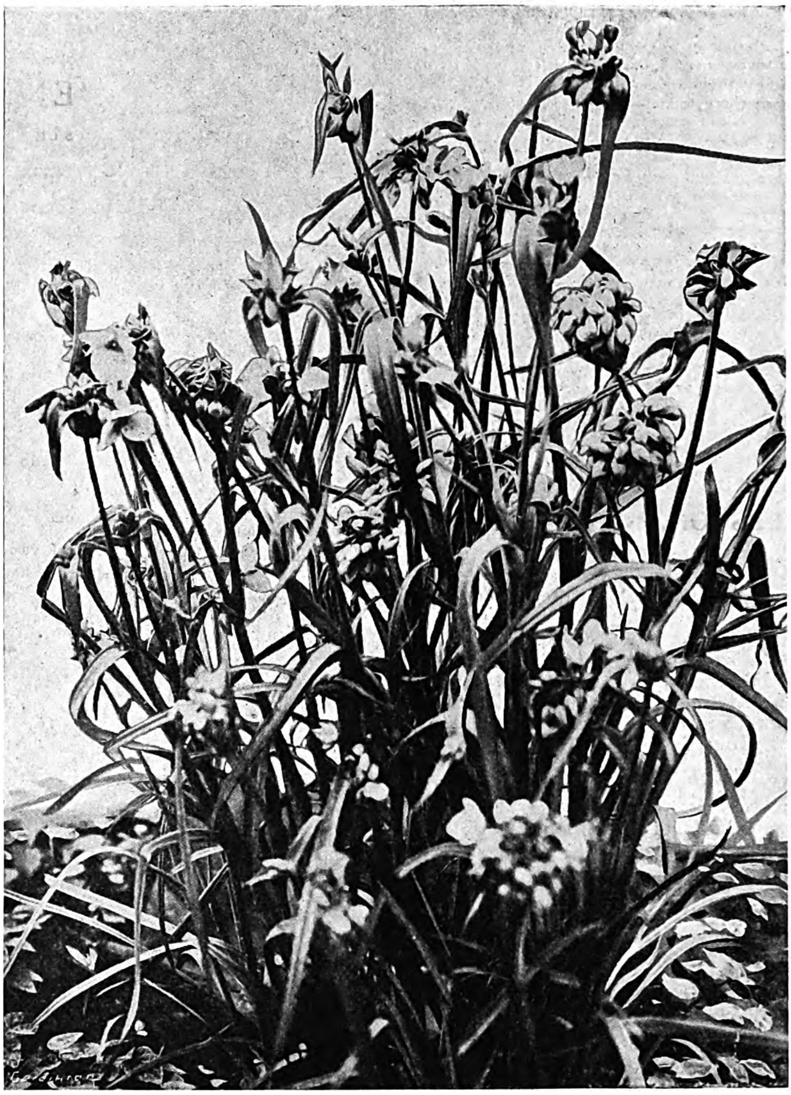


FIG. 214.—TRADESCANTIA REFLEXA.

T. chrysantha looks as if it would be of more value for out-of-door culture and leaving undisturbed than some of the Turkestan species. *S. Arnott.*

SCILLA PERUVIANA.

This fine old bulbous plant, which has been in cultivation here for over three hundred years, does not seem to have attained the popularity it deserves. A reputation for being only half-hardy may have stood in its way, but I feel confident that it is a great deal hardier than many more frequently seen. At any rate, I have grown it for many years in a dry border and a cool, deep loam and never lost a root. Last winter some old clumps, quite unprotected, withstood 30° of frost, and a few bulbs accidentally put on one side and left entirely exposed were so little injured that they grew away with vigour on being planted the following spring.

S. peruviana consists of a bulb about the size of a duck's egg, and an upright tuft of broad, strap-shaped, dark green, glossy leaves about eight inches in height. These bulbs increase rapidly by offsets and soon form a congested mass, which should be dug up every three years, the largest bulbs being replanted six inches or so apart. The flowers, which are borne on short, fleshy stems rather higher than the foliage, are carried erect in a bold pyramidal umbel. Individually, the blossoms are well over half-an-inch across, and the imposing inflorescence may be so much as six inches in diameter when fully developed. Although the typical colour of the flowers is a deep purplish-blue, there are varieties in a clearer blue, so well as a rosy-purple and a white. The flowering season extends over several weeks of early summer, and the plant asks no special attention. Give it a free loam, rather light but not too dry, see to the breaking-up of overgrown masses as soon as the leaves die down, which they do soon after flowering, and this Scilla should prosper.

The specific name of this plant suggests that it comes from Peru; the Kew *Hand List* gives Algeria as its place of origin, one gardening dictionary ascribes it vaguely to the "Mediterranean Region," another to Portugal, and in England I have heard it called the Cuban Lily, as well as the Peruvian Scilla! *J.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXVIII.—UP THE DIBANG TO NIZAMGHAT.

On November 28, the Political Officer drove me out to Nizamghat, thirty-four miles due north of Sadiya, which is the shortest distance to the foot of the mountains. Nizamghat is an outpost on the Dibang, situated at the point where that river emerges from its gorge to spread over the plain. During the rainy season the road is closed to carts, as all bridges are carried away; in fact, it had only just been opened so far as Nizam when we went through—that is to say, the jungle cut back and the trestle bridges replaced. On all these bund roads across the plain, which, of course, are unmetalled dirt tracks, it is necessary to keep the track for bullock carts so far as possible separate from the motor road; otherwise the latter soon becomes impassable. It is also necessary to cut down and burn the jungle for some distance back on either side, to prevent trees from falling across and blocking the road, and also to allow the sun to get at the road and dry it up after rain. After the jungle has been cut back, during the next rainy season secondary jungle springs up, and soon reaches a height of twelve or fifteen feet; and this has to be cut down each year. What takes the place of the original jungle depends a good deal on circumstances.

Bananas come up in thousands on every clearing, and the road to Nizamghat is lined with them. In drier soil, various grasses take hold, and can never be eradicated; Saccharum sp., which grows on the chapri, is one of them. In the hills, abandoned cultivation is quickly covered with herbaceous plants—Compositae, Acanthaceae, Viola, Torenia, Polygonum, several Labiatae, and other universal weeds; followed gradually by a dense growth of shrubs and small trees. On the chapri, that is islands of sand and shingle formed by the rivers, the first and, perhaps, the only trees to establish themselves are Bombax malabaricum and Sterculia villosa. Probably in some places it all goes back to jungle; but it must take a long time.

The road from Sadiya to Nizamghat lies over apparently level ground, although the actual rise is about 300 feet. Much of the country about the Dibang is low-lying, and two miles out from Sadiya is the only area on the plain where wet Rice is cultivated. Several small rivers which flow to the Dibang, are crossed; but the Dibang itself hardly comes in sight until Nizam is reached. Ten miles from our destination, an immense tree lay across the road; however, with the help of coolies who were at work sawing it through, we cut a diversion through the jungle and just managed to get the car round. Nizamghat is, perhaps, the most picturesque outpost on the frontier (Fig. 216). A small clearing has been made on the high river bank, where the post stands—a stockade, held by twenty-five men of the Assam Rifles under a native officer. There are also a couple of "bashas" for officers on tour, or for travellers like myself. A small Mishmi village is hidden in the thickets close by and that is all there is of Nizamghat. The upper gorges of the Dibang are very formidable, and bar the way to ranges of almost inaccessible snow peaks, where a wonderful botanical harvest awaits discovery. Here dwell the lawless and degraded Chulikata Mishmis, although the country might be described as almost literally uninhabited; for all the use the scanty but hostile population would be to any expedition, even on the most modest scale, it certainly is!

As for the post, it is more of a gesture than for defence, and it is withdrawn during the rainy season. It serves to keep the Mishmis penned in their own beastly hills, except in so far as they come down to the plain on their lawful occasions. Just above the post, the Dibang comes zooming out of the hills (Fig. 217) and spreads itself in a network of channels over the gently sloping plain; but the hills keep a close grip on it and above Nizam the river is narrow and deep and icy cold.

From Nizamghat the Assam valley spreads out spaciously to the south and west, until lost in the mist. It is apparently a level plain right away to the Brahmaputra at Kobo, but the many rivers, even after leaving the hills still flow fast, and the slope is actually quite considerable, the plain rising over 300 feet in the thirty odd miles between Sadiya and Nizam. This may not sound very desperate, until one compares it with the gradient of the Brahmaputra, which falls only 600 feet in the 1,200 miles between Kobo and the Bay of Bengal!

Slight as the elevation is above the Sadiya plain, it has great advantages, for we were above the cold mist bath which lies so heavily over the Lohit during the winter nights. At six o'clock in the morning we looked down on to a chill grey ocean, while all around us the air was perfectly clear, a fine dew sparkling on the grass

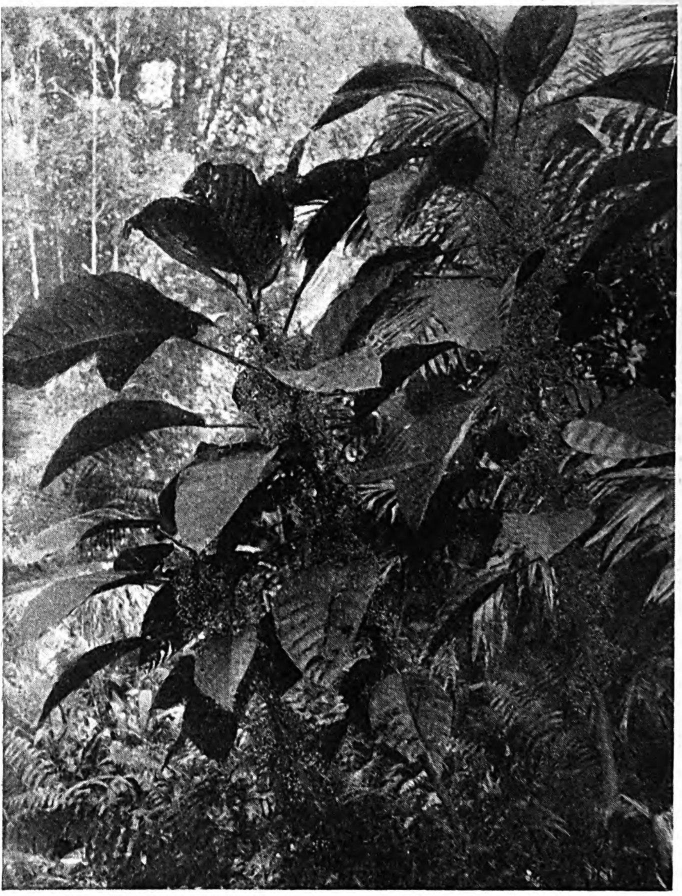

FIG. 215.—THE DANGEROUS "SURAT PAT."

Another thing which keeps the air clean and sweet is the boisterous wind which tears through these river gorges, throughout the night, and sometimes by day, too; although this continuous gale is apt to rasp one's nerves! Between Nizamghat and Pasighat I kept pretty close to the 1,000 feet contour all the way.

Two days spent at Nizamghat enabled me to climb the first low range of hills to about 3,000 feet, where there was a Chulikata village; but I found it rather bathos after the heights and delights of the Delei valley. Everywhere was thick jungle, although not quite so thick as on the plain. Cultivation is carried up to nearly 4,000 feet, and the fields were now gleaming with ripe Corn. There were very few flowers to be found, and nothing of great interest; but I collected what there was.

An interesting plant commonly met with in Upper Assam, along the edge of the jungle is called Surat Pat in Assamese—every resident knows it well by sight and reputation (Fig. 215):

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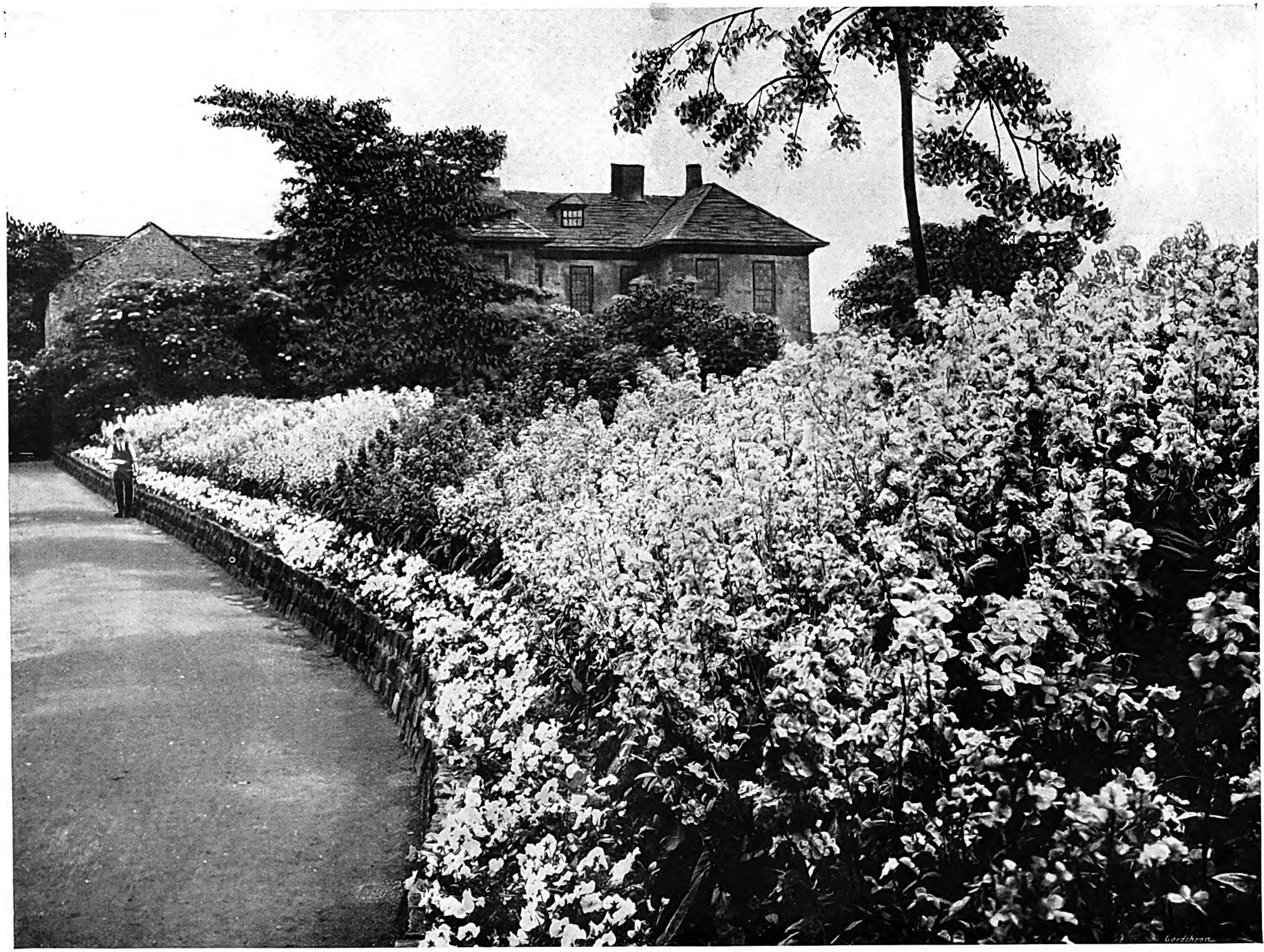
* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol LXXXV; July 13, 27; August 10, 24; September 7, 16, 28; October 12, 26; November 9, 23, 30; and December 7, 1929.

Supplement to THE GARDENERS' CHRONICLE.



BORDER OF STOCKS AT FOXDENTON PARK, CHADDERTON.

I do not know its botanical name, and as it was in fruit, am even doubtful about its affinities. It is a tall, loosely-knit shrub, with bunches of one-seeded white berries springing from the axils of large, dark green leaves. Looking through the leaves, one sees scattered translucent glands of great size, vesicles almost, which contain a powerful acid; but I could see no hairs on the leaves. The Abors boil and eat the berries. The plant, however, is notorious, not for its fruits, but for the fact that these harmless-looking leaves inflict a terrible sting on anyone rash enough to fondle them, the pain lasting so long as a week; I got stung on one finger, so I know! Doctors tell you that the only remedy is to bathe the injured parts in strong alkali; but apparently that has very little effect. Few people seem to know the native cure, which is to dig up the root, and rub the juice into the wound, when the pain is stated to go away within twenty-four hours. I did not try it; but then, I was only stung in one place, and there not badly.

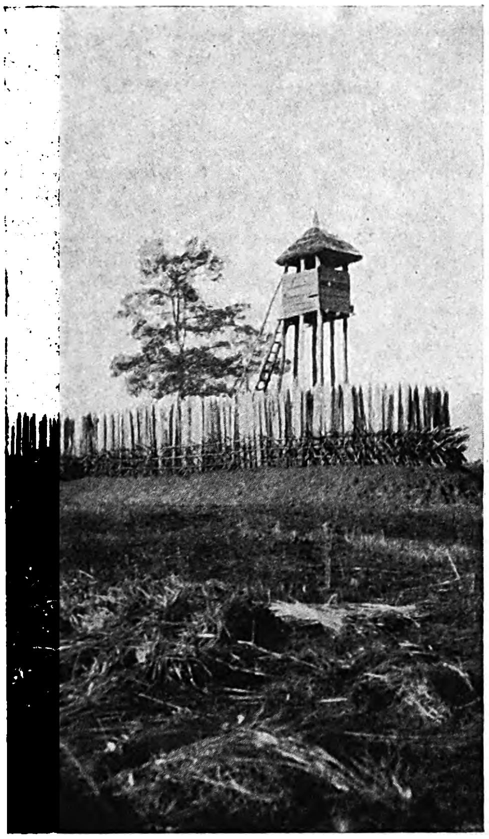


FIG. 216.—OUTPOST SENTRY BOX AT NIZAMGHAT

On December 1, I crossed the Dibang by canoe, having called up eight Abor coolies from the village of Dambuk, which was our destination; Nizamghat could not supply even that amount of transport. After crossing the river, we marched through miles and miles of cultivation which lay at the foot of the steep Abor Hills. Here and there we crossed a chapri, or a belt of jungle, but for six miles we walked between ripe crops of "dry" Rice, Job's Tears, Cotton and other things. The path was amply wide, sometimes between heavy Bamboo fences. Women and girls were at work in the fields, and occasionally we met men driving mithan. Approaching Dambuk, a village of four hundred houses built on rising ground at the very foot of the hills where a torrent bursts out of a slit, we crossed two stony beds, which, considering that they were perfectly dry, covered an immense area. The glare and heat here even in December suggested unutterable things in the hot weather, but a number of Duabanga trees (D. sonneratioides) were scattered over the stony desert, and looked perfectly at home.

I camped on the outskirts of Dambuk amid a grove of Jack-fruit trees, and, of course, came a good deal under observation from the inhabitants, who see a white man in their village only about once a year. The Abors of Dambuk have a reputation for being rather truculent, but as they pay poll tax in Sadiya they have to toe the line. They treated me quite well, but there was trouble in the air over an alleged epidemic in the next village. What the sickness was, nobody knew, although it sounded like diphtheria. Anyhow, the Dambuk Abors would not take me there, and I was warned that if I went on, I must not return to Dambuk this way, but must go on to Pasighat, and thence to Sadiya; from there I could return to Nizamghat, and so to Dambuk after seven days—if I liked. However, these quarantine regulations only affected me in so far as I took an Abor from Dambuk to act as guide and interpreter.

Of course, the Dambuk folk would not take me to the next village. They promised, however, that if I would stay a day, they would send a man to call coolies from the next village to meet me on the bank of the Sisseri river, and that they themselves would take me so far as the Sisseri. So I spent December 2 taking photographs and collecting a few plants.

All around the village there was a great area of secondary growth, mostly thick scrub, where a few Myrtaceae were in flower, and bushy Labiatae also. Paths ran in every direction. But on the plain below, and on the hills above, was dense jungle. *F. Kingdon Ward.*

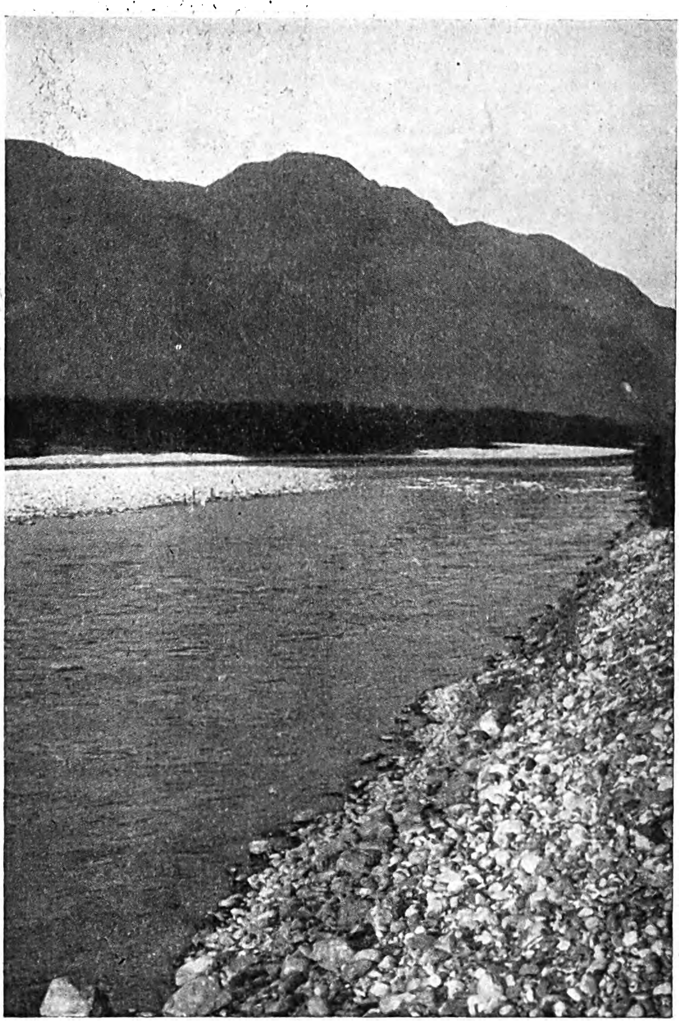


FIG. 217.—THE DIBANG EMERGING FROM THE HILLS.

PLANT VARIATIONS.

SPORTS, CHIMAERAS, VARIEGATION AND MUTATIONS.

(*Concluded from p.* 425.)

Variegation.

In its broadest sense, the term variegation is applied to plants in which two genetically distinct tissues of different chlorophyll character occur in the same plant. Numerous plants of this character have been described. In many cases, however, this variegation of the leaves is not caused by the presence of two distinct tissues in the plant, but is due to a variety of causes, the most important of which are:—

(a) Variegation, inherited, but due to physiological changes in the plant itself. In these cases a leaf may start white or yellow and become green or greenish, *e.g.*, Maize; or tissues may start greenish or yellow and become white, *e.g.*, Pelargonium zonale varieties Golden Brilliantissima and Mrs. Pollock; or the earlier leaves of a plant may be of one chlorophyll type, and the later leaves another.

(b) Mendelian variegations, of which there are several. In these cases the leaves may be irregularly mottled or mosaic, with differently characterised chlorophyll areas, as in variegated Tropaeolum; or the variegation may be more or less regular, as in the striped-leaved types of Maize. Such variegation is inherited in a Mendelian way, usually as a simple-recessive to green.

(c) Non-Mendelian variegation, where the variegation is transmitted by both the male and female parent. The appearance of green, white and variegated seedlings in the progeny of a green-leaved branch fertilised by pollen from a white-leaved branch, or a white-leaved branch by a green-branch, is thus due to a segregation of the dissimilar plastid contributions of the male and female parents at the somatic divisions.

(d) Variegation due to pathological causes which, although inherited by the mother plant, can also be transmitted by grafting, *e.g.*, Abutilon Thompsonii (Fig. 210). The variegation in Begonia manicata var. variegata (Fig. 211), Golden-leaved Laburnum, Jasminum officinale var. variegatum, and J. nudiflorum var. foliis aureis, etc., is probably of the same nature. This subject is very fully dealt with by Burbidge (*The Propagation and Improvement of Cultivated Plants*, p. 60).

A Brief Account of the Behaviour of Some Variegated Plants.

Innumerable species and varieties of plants have variegated leaves. A list is quite unnecessary. It is interesting, perhaps, to mention here that Sansevieria Laurentii (Fig. 212), a variegated leaved plant, when grown from a leaf, produces from its base a rhizome which later gives rise to a shoot producing normal leaves without the yellow margin.

Variegated-leaved plants having green, red, or yellow lobes of tissue distributed irregularly along the leaf margin sometimes occur in the following :—Abutilon Souvenir de Bonn, Coleus, some garden varieties ; Ficus radicans var. variegata, Hibiscus rosa-sinensis var. Cooperi, Hydrangea hortensis var. variegata, Leycesteria formosa var. variegata, Pelargonium zonale var. Golden Brilliantissima, Prunus cerasifera var. Hessei (Fig. 213).

Normal and Reversed Variegation.

Many plants have more than one form of variegation, *i.e.*, they frequently produce a form in which the position of the white or yellow portion of the leaf is reversed, *e.g.*, Ananas sativus var. variegatus (Pine Apple), the leaves of which have green centres and yellow margins. In Ananas sativus var. Porteanus, the leaves have yellow centres and green margins.

In Chlorophytum elatum var. variegatum (Fig. 218), the form having green centres and white margins to the leaf, gives green seedlings, while the form having white centres and green margins gives white seedlings (Collins, 1922).

Coprosma Baueri has two variegated forms, one with a creamy-white margin, and the other form, Stockii or picturatum, has a green margin with a creamy centre. Both varieties will sport to the green type.

Elaeagnus pungens, a green-leaved plant, produces two forms of variegation, viz. : var. aurea, with golden margins, and the variety Frederici (aureo-picta), with cream or pale yellow centres and green margins to the leaves.

The leaves of Euonymus japonicus var. albomarginatus have white margins and green centres ; E. J. var. aureus, green margin and yellow centre ; E. j. var. aureus marginatus, leaves mostly golden all over, margins mostly golden ; E. j. var. latifolius, green-leaved form ; E. j. var. l. aureus, yellow margins ; E. j. var. l. albomarginatus, white margins (Fig. 219) ; E. j. var. l. Duc d'Anjou, green margins, pale yellow centres (Fig. 219). At Merton, the variety Duc d'Anjou produces four distinct forms on one and the same plant, viz., (1) green-leaved shoots ; (2) white-leaved shoots ; (3) shoots having leaves with white margins (the variety albomarginatus) ; and (4) the typical form.

Hydrangea hortensis has several variegated forms, some with white or golden margins to the leaves, and at least one variety (nivalis) which has green margins and white centres.

Ilex Aquifolium (Holly) has many varieties with white or golden margins to the leaves, and some with green margins and white or golden centres, *e.g.*, vars. argentea-medio-picta, aurea-medio-picta and Lawsoniana.

Of Pelargonium zonale and P. peltatum, several of the white-margined forms (white skin over a green core) will produce shoots having a reverse form of variegation, *i.e.*, green margins with whitish or yellowish centres (green skin over a white core), *e.g.*, Caroline Schmidt, Snow Queen, Flower of Spring, and L'Elegante (Ivy-leaved).

Sedum Sieboldii var. variegatum exists in two forms, viz., white-edged and green-edged. Tradescantia fluminensis var. variegata (Fig. 220) has white-edged and green-edged forms.

Vinca major has green leaves. The variety variegata has white margins, and the variety elegantissima has green margins with a whitish centre, *i.e.*, green over white.

The inception and interpretation of much of the work mentioned above is due to the late Professor Bateson, Director of the John Innes Horticultural Institution (see Bibliography). I am indebted to Sir Daniel Hall, the present Director, for many valuable suggestions, to the proprietors of *The Gardeners' Chronicle* for the use of many of the illustrations and also to Mr. H. C. Osterstock of this Institution for many photographs.

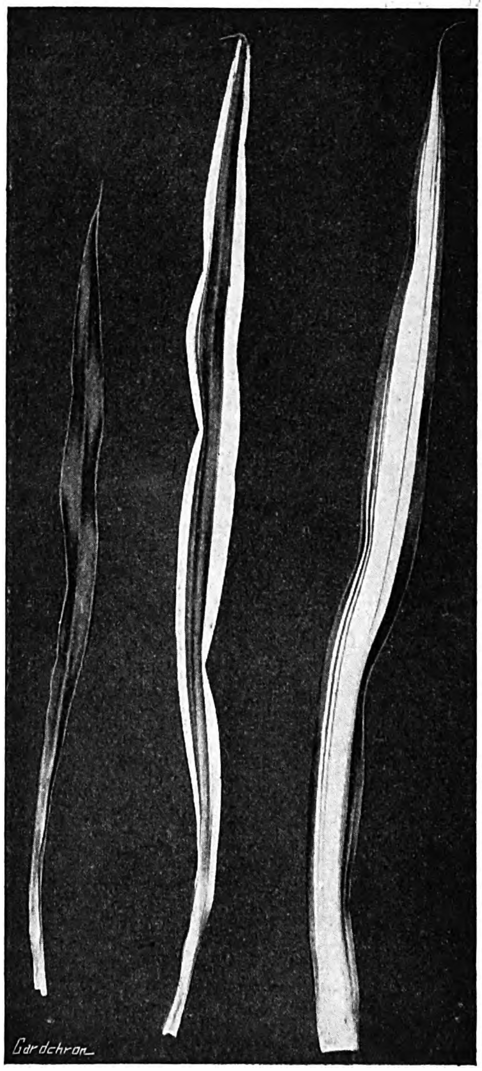


FIG. 218.—CHLOROPHYTUM ELATUM.
Left, green ; centre, green centre ; right, white centre.

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A. Hosking, Garden Superintendent, John Innes Horticultural Institute, Merton, Surrey.

THE GENUS PRIMULA.

(*Continued from p.* 450.)

TANGUTICA (Pax). Tawny P.
(Nivales).

A HANDSOME, smooth, non-mealy, perennial species with a tuft or rosette of nearly stalkless, oblong or oval-oblong, pointed leaves, slightly narrowed towards the base, two to three inches long and three-quarters- to one-and-a-half inch wide ; margins nearly entire or finely toothed. Flower stem smooth, twelve to fifteen inches tall, bearing several superposed umbels of four to six tawny, purple blossoms, on stalks three-quarters- to one-and-a-quarter inch long. Corolla about three-quarters-of-an inch across, with narrow, linear lobes ; tube about three-quarters-of-an-inch long, equalling the calyx in length.

Grows in damp places on the mountains of Kansu, in north-western China.

Culture : As for P. Maximowiczii.

TANNERI (King). Tanner's P.
(Petiolaris-Roylei).

A beautiful perennial species from the eastern Himalayas, with a tuft of smooth, non-mealy leaves which have pointed, triangular blades about two inches long, heart-shaped at the base, on slender stalks slightly shorter than the blade, dilated and sheathing at the base; margins irregularly and sharply toothed. Flower stem slender, five to seven inches tall, bearing an umbel of two to eight pale violet blossoms. Corolla about five-eighths-of-an-inch across, with oval, very deeply notched lobes; tube slightly longer than the calyx, narrowly funnel-shaped, with a ring at the mouth.

This species is found in the Chumbi Valley, in the Sikkim Himalayas, at 9,000 to 12,000 feet above sea-level.

Culture: As for P. saxicola.

TANUPODA (Balf. f.). Long-podded P.
(Farinosae).

A minute, mealy, perennial species with a rosette of somewhat thick, narrowly oval, blunt leaves about three-quarters-of-an-inch long, of which measurement the winged stalk occupies about one half; the sub-cartilaginous margins are furnished with irregular, blunt teeth; both surfaces are dusted with fine meal. Flower stem about a quarter-of-an-inch tall, bearing an umbel of about five blossoms, the colour of which has not been recorded. Corolla about three-quarters-of-an-inch across, with egg-shaped, very deeply-notched and deeply divided segments; tube cylindrical, not ringed. Flowers in August. Not in cultivation.

Grows in the Kumaon Himalayas, in the Ralan Valley.

Culture: As for P. Prattii.

TAPEINA (Balf. f.). Tapestry P.
(Bullatae).

A dwarf, sub-shrubby species with a branched, woody rootstock densely clothed with the dry remains of previous seasons' foliage. It forms dense cushions from six to twenty-four inches across, of narrowly lance-shaped or oblong-lance-shaped, blunt leaves, one-and-a-half inch to two-and-a-half inches long, gradually tapering to narrowly-winged stalks about equalling the blade in length; margins almost entire; upper surface sparsely mealy or glandular pubescent; underside densely coated with white meal. Flower stem about one inch tall, mealy upwards or glandular pubescent, bearing an umbel of two to six white, orange-eyed blossoms, or occasionally rose with a yellow eye, borne on slender stalks about five-eighths-of-an-inch long, coated with white meal or glandular down. Corolla about five-eighths-of-an-inch across, with broadly heart-shaped, deeply notched lobes; tube about half-an-inch long, cylindrical, densely coated with white meal on the outside. Flowers in June.

Grows on dry, shady rocks and cliffs, usually on limestone formation, at and above Tsarong, in the Salween-Kiuchiang divide, south-eastern Tibet.

Culture: As for P. Dubernardiana.

TARAXACOIDES (Balf. f.). Dandelion-leaved P.
(Petiolaris-Sonchifolia).

A deciduous, perennial species with smooth, membranous leaves resembling some deeply-cut forms of the common Dandelion: they are about three inches in length, and well developed when the plant is in flower. The stout, sparsely mealy flower stem is one-and-a-half inch to three inches tall, and bears an umbel of eight to twelve violet blossoms about three-quarters-of-an-inch long, with broadly egg-shaped or rounded, shortly-toothed segments, and a tube about half-an-inch long, with a ring in the mouth.

Grows in clefts and on the surface of the rocks at Malong, in Yunnan, western China, at about 9,000 feet above sea-level.

Culture: Peat, loam and limestone chips, or a cleft in a limestone rock, in a cool, damp spot, should suit this species.

TENANA (Bonati). Pére Siméon Ten's P.
(Malvacea).

This beautiful plant, formerly known as P. blattariformis (Fr.) var. Duclouxii (Bonati) is now raised to the rank of a sub-species of P. blattariformis. The slender rootstock produces a tuft of oval leaves one inch to two inches long and three-quarters- to one-and-a-half inch wide, heart-shaped at the base, borne on slender, rounded stalks, covered with short, stiff hairs; margins very deeply divided into rounded lobes; both surfaces rough with short, stiff hairs. Flower stem rather slender, nine to twelve inches tall, rough, with short, stiff hairs and bearing a raceme of about a dozen deep rose, purple, or lilac-coloured blossoms on slender stalks a half- to three-quarters-of-an-inch long. Corolla five-eighths- to three-quarters-of-an-inch across, with egg-shaped lobes; tube cylindrical, about half-an-inch long.

Grows in shady places on the mountains at Makong, near Tong-Tchouan, in Yunnan, western China.

Culture: As for P. blattariformis.

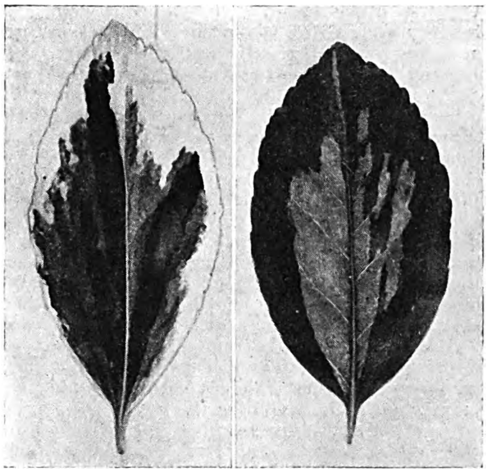

FIG. 219.—EUONYMUS JAPONICA.
Left, var. albo marginatus; right, var. Duc d'Anjou, yellow centre.
(see p. 468).

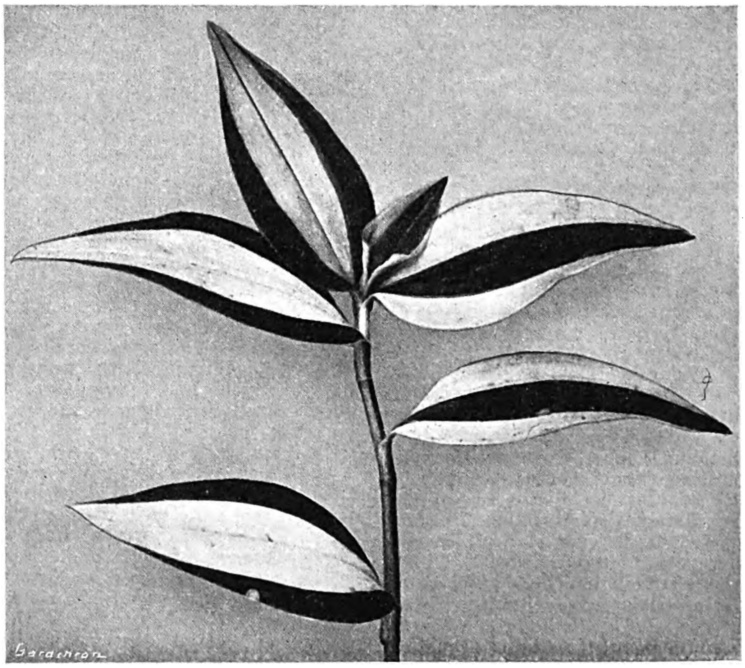

FIG. 220.—TRADESCANTIA FLUMINENSIS VAR. VARIEGATA.
Showing white margined and white centred leaves.
(see p. 468).

TENELLA (King). Dainty P.
(Obtusifolia).

A most delightful little Himalayan perennial species with a stout rootstock which produces tufts of egg-shaped or diamond-shaped, pointed leaves about half-an-inch long, narrowed to a wedge-shaped stalk; margins above the middle of the blade edged with coarse, rather blunt teeth; both surfaces more or less mealy. Flower stem very slender, one inch to two inches tall, bearing a solitary bluish-white blossom. Corolla about three-quarters-of-an-inch across, with five very broad and deeply notched, heart-shaped lobes; tube slender below, broadly funnel-shaped at the throat, several times longer than the calyx.

Grows in rocky soil at Pari, in the Chumbi Valley, between Sikkim and Bhutan, at about 13,000 feet above sea-level.

Culture: Friable loam, peat, limestone chips and sand, in a well-drained spot abundantly supplied with water when the plant is in growth, with protection from damp in winter, are the conditions suggested.

TENUILOBA (Hook. f.). Narrow-lobed P.
(Minutissima).

A minute, densely tufted perennial species, with rosettes of almost smooth, non-mealy leaves about a quarter-of-an-inch long, with egg-shaped, stemless blades rounded at the tip and slightly narrowed at the base; margins above the middle furnished with regular teeth. Flower stem obsolete; flowers nearly stalkless, sunk in the rosettes of foliage. Corolla purple, about three-quarters-of-an-inch across, with narrow, linear segments deeply cleft into narrow lobes; tube narrow, slender, cylindrical, slightly hairy, much longer than the calyx.

Grows in rocky soil near Yemutong, in the Sikkim Himalayas, at about 14,000 feet above sea-level.

Culture: As for P. tenella.

TIBETICA (Watt). Tibetian P.
(Farinosae).

This dwarf species usually dies after it has produced seeds, although it is perennial at times. The short rootstock produces a tuft of elliptic or oval-spathulate, blunt or pointed, leathery leaves about half-an-inch long, gradually tapering to a short stalk; margins quite entire; both surfaces smooth and non-mealy. Flower stem half-an-inch to three inches tall, bearing an umbel of one to five pale rose-purple or deep rose-coloured, yellow-eyed blossoms, on erect stalks one inch to two-and-a-half inches long. Corolla about five-eighths-of-an-inch across, with flat, deeply-cleft, heart-shaped lobes; tube about a quarter-of-an-inch long with a ring in the throat. Flowers from June to September. Introduced in 1915. *Bot. Mag.*, t. 8,796.

Grows in open bogs and damp, alpine pastures, in rocky soil in western and eastern Tibet, reaching an elevation of 17,000 feet above sea-level.

Culture: As for P. farinosa. *A. W. Darnell.*

(*To be continued*).

HOME CORRESPONDENCE.

The Need of Education for Gardeners.—I was much interested in Mr. Good's letter on this subject in your issue of November 23, also in Mr. Tullett's. To my mind, Mr. Good's letter practically answers Mr. Tullett's, for although private gardening is very poorly paid, and private gardens all over the country are being given up, there are many better paid jobs in these days—public appointments, not too badly paid, and with retiring pensions. I have conducted a correspondence coaching class for gardeners every winter for the last fifteen years, and this has brought me into touch with many men holding such appointments. Usually the R.H.S. General Examination is an incentive towards going on for the National Diploma in Horticulture; but with regard to the Diploma, many of us are feeling a bit dissatisfied with the practical examination at Wisley. If an eminently practical man, holding a public appointment entirely on his own merits, and in open competition with several other candidates, passes in the written N.D.H. and is turned down at Wisley on his own subject, practical work, does it not give food for thought? This is not one isolated case that I have quoted, but I have three men in my mind who were doubtful as to the written paper, but quite confident that the practical was "in their line." And yet they were turned down, and as a coach, one wonders what to say to these men on the fairness of examinations. *H. G. Kennedy-Bell.*

Primula crispa.—I am afraid Mr. Hay has made a mistake in his note on page 445 (December 7) of your journal, and I am not very surprised. With two such valid specific names as Primula crispa and Primula crispata so alike it must be easy to err in the correct naming of one or the other. From Mr. Hay's description of his plant, he has Primula crispata, which was collected in Sikkim by Mr. Cooper, and *not* the true P. crispa. Primula crispata belongs to the Capitatae section, has white farina on the flowers, and blooms in September, all agreeing with his plant. Primula crispa belongs to the Denticulata section, has yellow farina on the flowers, and blooms in April, and also comes from Sikkim. Both lack farina anywhere on the leaves. Farrer ought not to have grouped Primula crispa along with Primula capitata and its sub-species (much less so P. atrodentata !). I hope Mr. Hay will not mind my pointing out the error, as I feel sure he loathes growing a plant under its wrong name, just as I should do. *Ronald Smith, Greenhead, Gargrave, via Leeds, Yorkshire.*

Lonicera nitida.—It is important that both the merits and the shortcomings of Lonicera nitida should be generally appreciated, for not only is it easily propagated and reared, but it is also grown by the trade in large quantities. On account of these facts there is no reason why its price should be much in excess of that charged for oval-leafed Privet, so that if L. nitida can be proved to be a good hedging plant, there should be equal satisfaction on all sides. Varying experiences show very different results. I have planted L. nitida, one-and-a-half foot to two feet in height, on poor, chalky soil, and in a very exposed position at that, and within three years a perfect hedge four feet in height and eighteen inches through was formed. This hedge looked so well that it was transplanted *en bloc* to the local Chrysanthemum show and used in an exhibit, being returned in four days' time to its original position. It showed no resentment towards such treatment. Many thousands of plants of L. nitida have been used in this district, with excellent results where they were carefully planted and maintained. In the very worst south-west gales and during the most severe frosts it sheds a few leaves, but not sufficient in any way to detract from the appearance of a well-formed hedge. On the other hand, I have seen seemingly healthy plants in various parts of the country, standing perfectly still and becoming more bare at the base and more stunted in appearance as time goes on, thus presenting a miserable advertisement for the qualities of the plant. How can the difference be explained? The answer is, I think, quite simple. Lonicera nitida is, like other naturally vigorous hedge plants, a very gross feeder, and has a very extensive rooting system, surprisingly evident in the early stages of growth. In my experience, young plants not more than twelve to eighteen inches in height, which have been at least once transplanted, put into suitable enriched soil, never look back, and if kept vigorous by means of annual mulching and frequent clipping between the months of May and August, keep growing until a height of four or five feet is reached. On the other hand, I have seen acres of nursery-grown stock which has stood on the same ground for two seasons without being transplanted, attaining a height of four feet or more, which, when lifted possessed roots as coarse as Carrots. When such specimens are planted as a hedge they drop most of their leaves, and unless they are cut back almost to the ground level, make practically no growth at all. In order to make a successful hedge, Lonicera nitida should be encouraged to maintain its vigour without a check of any kind. Until it is permanently planted it should be transplanted every year to keep the roots in a fibrous and growing condition. In addition, it should be fed liberally, for it will not maintain vigour on starved soil. The plants' success on chalky ground is attributed to the fact that humus in any form becomes quickly available in the presence of calcareous matter, and the plant is able to utilise the requisite raw material almost immediately. Autumn-rooted cuttings, whether they be in frames or in the open ground, should be moved the following spring and again the following autumn. Because a plant is easily grown there is no reason why it should be neglected in its minor requirements. Had L. nitida been difficult to propagate it would have been heralded with the pomp and splendour of an Osmanthus Delavayi, and would have, in common with most other evergreen hedging plants, been rendered the treatment and given the price attributed to the Yew or Cupressus Lawsoniana. If L. nitida is sufficiently transplanted, and is afforded the just amount of nourishment which its natural vigour demands, there should be little chance of failure. Hardiness is a dangerous subject upon which to embark. I have lost plants of various species of Cistus, Ceanothus and Escallonia when L. nitida has passed practically unscathed, and have certainly never lost a plant of the latter through frost. My own experience with L. nitida in actual cultivation and in hedge-making has been confined to chalky loam, where the plant has always been a success. The remainder of these notes are based on careful observation of the failure of badly-grown nursery stock as compared with the success following the use of well-transplanted young plants. *N. Catchpole, Brighton.*

——My recent article on Lonicera nitida (p. 322) was based upon observations of the plant in widely separated parts of the country. These observations have indicated that the behaviour of the species is erratic, and while I know of plants which are quite happy in high, exposed situations, I am also familiar with other specimens which are annually cut by frost, although planted in relatively sheltered gardens. In any case, a plant which is to be used for hedges must be reliable. I entirely agree with Mr. Chittenden (p. 391) that it would be of interest to collect information as to the response of L. nitida to varying conditions of soil and climate. *L. C.*

——Mr. Chittenden (p. 391) appears to have been unfortunate with Lonicera nitida, but even after reading of his doleful experience at Wisley, I am convined that failures with Lonicera nitida are rare. Since it was introduced hundreds of thousands have been distributed from here to all parts of the British Isles and no word of complaint has been received of its ill-doing, which must surely speak for itself; had it acted generally in the contrary manner which Mr. Chittenden suggests we should have been inundated with letters from disappointed growers, but, happily, it is quite the reverse. Of course, the non-success of a certain plant in one position, while it luxuriates in an apparently identical adjacent site, has always been a problem to gardeners, even to those who have grown very old in the lore. It would seem that the bad behaviour of L. nitida at Wisley is due to some local condition, but if we were to condemn a plant through a few isolated failures our gardens would be almost denuded. *H. A. P., Brampton. Hunts.*

Kniphofia Fireflame.—I regret to find that the sender of the Kniphofia Fireflame, which recently received an Award of Merit, was stated, in the report of the Wisley Trials (see p. 373), to have been sent by Messrs. Ruys. It came with two other varieties from Messrs. G. Lubbe, of Oegstgeest, Holland, and was raised by that firm. *Fred J. Chittenden, Wisley.*

Pineapples at Minley Manor.—One of the subjects grown well and made a speciality of at Minley Manor Garden, by the head gardener, Mr. H. Wright, is the Pineapple Smooth Cayenne. During but very little of the twelve months taken to "fruit" them, is any great amount of heat ever used; in fact throughout the summer months, until colder days arrive, they are grown in a cool frame outside, plunged to the rims of the pots in "tan" or rough peat, and kept close to the glass to ensure sturdiness of growth. Whenever suckers arise from the base of the older plants they are removed and rooted in a close propagating case. They are then "grown on" without a check, until they are in twelve-inch pots. When the time comes for them to produce flower spikes the rosette of leaves begins to lie open. The plants are then removed to a warm house for fruit-bearing. Again, the best results are obtained by means of plunging the pots rim-deep in tan as before. They are given a night temperature of not less than 65°, and the atmosphere of the house is kept in a high state of humidity by means of frequent damping down or syringing, as the weather may demand. Feeding with liquid manure is attended to right up to the time the flowers open, when it is suspended and a drier atmosphere maintained, with a slightly lower temperature. After the blossoming period has passed they are allowed a good growing atmosphere again until the fruits are ripe; these Pineapples average between seven and eight pounds each in weight. *W.*

Bees and Fruits.—Having the care of bees in these gardens, and previously, I was interested in your correspondent's observations (p. 309) regarding their attacks on fruits this season. I first noticed them doing such damage in 1926, in Suffolk, on the Peaches and Figs on walls, but I came to the conclusion it was the result of giving the bees too much work on late honey-gathering in that season. But this year it has been worse, I think, and besides not having much honey from the hives I lost the best of the fruits. The dry season this year has made a great difference to the bees. I noticed them working on the flowers in the early mornings, their attention being turned later in the day to the fruits. It may interest Mr. F. Akers, *re* his question regarding bees and wasps (370), to know I have destroyed well over one hundred wasp nests about here this year, and in May I destroyed forty-seven queens. This autumn it has been surprising to see the queens seeking winter quarters; the stoke-hole here being a trap for them—they get under the slates and the warmth brings them down into a window. We destroyed 114 queens in that manner during September and October. I also saw eighty-seven queens killed under the bark of an Elm tree which had blown down two years ago. The wasps did not trouble the bees on the fruit trees, for they worked on the foliage alone, leaving the fruits to the bees, whereas last year the wasps attacked the fruits, leaving only the skins, and not a bee was observed attacking the fruits. *S. J. Robbins, Cefn Park, Wrexham.*

AN EXAMPLE OF HIGH MORTALITY IN RHODODENDRONS.

In the autumn and winter of 1928, considerable losses occurred in hybrid Rhododendrons of the Pink Pearl type that had been grafted three to five years previously. Material was received by Mr. Holmes Smith, Adviser in Agricultural Botany at the Manchester University, and at his suggestion we have conducted an investigation into the cause of the disease. Facilities for investigation have been placed at our disposal by a leading firm of nurserymen.

The affected plants showed relatively enormous lesions extending upwards from the ground level, and exposing the wood. On the smaller branches of such plants the bark was bleached a silvery-white, and in many cases there occurred numerous minute, black dots which, on examination, were found to be either the pycnidia of the fungus Diplodina, or, more commonly, the acervuli of a species of Pestalotia (Pestalozzia). These fungi have been identified as Diplodina eurhododendri and Pestalotia macrotricha, respectively. They have also been found in blackened areas on the leaves. The possibility of the disease being due to these fungi was therefore suggested.

Pestalotia macrotricha has been isolated from the inner tissues of diseased plants with some frequency, along with a fungus producing only sclerotia; but inoculation experiments with all these fungi have shown that the Diplodina is entirely innocuous, and the other two are, at the most, only feeble wound parasites.

At the commencement of the investigation it was seen that the lesions on the stems of diseased plants were related to the position of the graft union, and attention was therefore directed to the method that had been employed in propagation. This was, in fact, "saddle" grafting, and examination of younger plants showed that in some cases stocks and scions of unequal thickness had been united, a temptation that this method offers. The union was necessarily imperfect and exposed tissue was offered to fungus invasion over a long period. Moreover, in extreme cases the ensuing growth was uncorrelative in character, and the plants were subjected to peculiar growth strains. These imperfect unions between stock and scion are, therefore, believed to be the initial cause of the lesions observed in older plants. Further, it had been the practice to place the graft union just below the surface of the soil, a position that not only causes the callus to remain soft, but which is extremely favourable to fungal activity. In this connection it may be mentioned that standard Rhododendrons in which the unions were away from the soil were unaffected by the disease.

As preventive measures, therefore, it is suggested:—

(1) That on no account should stocks be grafted with unequal scions.

(2) That, possibly, "side" grafting should be more frequently employed; and

(3) That in planting out, the graft union should be left well above the soil.

Incidentally, it may be mentioned that in the course of the investigation, the well-known preference shown by Rhododendrons for acid soils of high humic content was disclosed. *W. O. Howarth, M.Sc., and H. G. Chippindale, M.Sc., Botany Department, University of Manchester.*

MODERN GLASSHOUSES.

While recently inspecting some newly erected glasshouses, and having all their modern improvements pointed out to me by the very enthusiastic owner, a doubt crept into my mind as to whether the structures were so very much in advance of those erected half-a-century or more ago. But I duly noted and approved many of the points my friend put forward, for truly the houses were well built of good materials—buildings to gladden the heart of any gardener.

Yet the doubt remained, and on my return home I pulled down from my bookshelf an old volume called *Structural Gardening*, which contains exhaustive details and explanations as to the best type of house and fittings for varied purposes, and as I perused its pages I wondered yet more whether all our modern houses are as perfect as we think them.

Admittedly the houses of to-day are lighter and have better heating arrangements than in the past; yet they contain many of the faults of the old houses, and almost invariably lack the solidity of the various internal fittings.

Most houses to-day have more or less elaborate means of opening and closing ventilators, but I have yet to see an arrangement for raising and lowering a shelf to suit the height of different plants, and to avoid the wet and time-wasting job of watering from the top of a pair of insecure steps. Or, if this be impossible, surely a shelf could be devised to carry off the waste water to a convenient point instead of allowing it to descend anywhere.

Then take the stagings in plant-houses. How seldom (but for the handiness of the gardener in improvising with any material to hand) do we see adjustable staging? Yet surely it is obvious that a staging suitable for, say, Chrysanthemums, is ill-adapted for Cyclamens.

Again, in building fruit houses and forcing pits, how seldom is any provision made for allowing a wheel-barrow to enter at all, let alone easily; and, when one can get a barrow through, much damage to expensive Teak-wood door frames might be prevented by a metal covering where the posts are likely to be damaged, or even a covering of match-boarding, which could easily and cheaply be replaced when necessary.

Then there is the annoyance of pieces of gravel getting jammed under a door through the latter being hung too low instead of it being given more clearance and allowed to close on to a sill.

With span-roofed houses the great fault often is that where they contain centre staging the doors invariably face the end of the centre staging instead of opening directly into the gangways, when it would be possible to enter with a hand-barrow, thus saving a good deal of time when plants have to be moved in or out.

Water arrangements are often very inadequate. The old-fashioned tank under the staging has much to commend it, but something should be done to prevent the leakings of the plants overhead from entering, as experiments have often proved that several plant diseases are spread by contaminated water.

Shading is still more or less decided on the score of expense, but the builders of houses might at least provide some means of getting on to the roof of houses without so much risk as is often the case at the present time. Span-roofed houses are often built too close together to prevent a ladder being easily laid on the roof, but it ought not to be impossible to arrange matters so that such things as the replacement of blind cords could be done from the inside, through the top ventilators.

As to ventilating gear, why could it not be actuated from the outside instead of being, as is so often the case, very much in the way inside the house?

No doubt many will raise the objection that the changes I advocate are unsightly and would add to the cost, but I think that with a little care the former could be avoided, and by doing away with some of the unnecessary ornamental fittings, such as the fancy terminals on the gable ends, and so on, the cost need not be greatly increased, while the advantages are obvious.

This by no means exhausts the list of improvements required. For instance, a system of "wiring" fruit-houses which could be quickly dismantled when the house requires cleansing or when a shoot gets the wrong side of the wire, would prove a great boon, and a few experiments with a ventilating fan as to its possibilities for use in certain types of houses would be watched with much interest.

Horticultural builders do, I feel sure, give good value for money, but I fear that often their designers have little experience of actual gardening conditions to help them. But it ought not to be too much to expect that our great horticultural societies would be able to furnish data as to the advantage or disadvantage of any particular structure or fittings. *S. W. Ecnad.*

HEDGEROW FRUIT TREES.

One of the phases of fruit-growing which interests visitors to the counties of the west, where Apples and Pears are extensively cultivated for vintage purposes, is the ancient custom of planting fruit trees in the hedgerows. Judging from the healthy state and vigour of the trees and the regular crops they yield, credit is due to our predecessors for realising that as shelter and shade for cattle the planting of these fruit trees was just as practical, and at the same time more remunerative, than that of timber trees. Many of the oldest and finest specimens of Perry Pear trees are to be found growing in the hedges. These handsome trees have most probably witnessed over and over again the renewal of the hedges, and it is evident, if vigour and absence of decay is any criterion, that they will again see the planting of fresh boundaries.

Commercial growers know that certain market varieties of Pears are most profitable when grown as naturally-developed standard trees; such trees make the best material for hedge planting.

There are many miles of hedges in market fruit-growing districts where fruit trees would grow as healthfully from among the lower brushwood as any timber trees that now embellish them.

This method of planting fruit trees is not peculiar to the west country, for in Kent and Middlesex Damsons are planted on the outside of plantations and in the hedges as a protection from gales. A quantity of fruits is thus secured at the minimum cost of production. It is even possible to utilise better varieties of Plums.

An excellent cropper, and a Plum most suited for this purpose is Blaisdon Red. This strong-growing Plum is a Gloucestershire variety; it is remarkably resistant to silver-leaf and highly prized in the Vale of the Severn. Blaisdon Red is a most accommodating tree, and in the county of its origin it is found growing satisfactorily on many types of soils and in all conceivable situations. It is equally at home on the thin soils of the Forest of Dean or on the rich formation of the Severn Vale. One feels confident that a Plum like this, possessing the ability to adapt itself to such a variety of conditions, might be successfully planted in any part of the country.

Should any grower contemplate planting this variety he is advised to purchase stock direct from the Gloucestershire growers themselves, as there may possibly be some difficulty in obtaining it through the usual sources, and ensure that the trees are true to name.

It may be objected that fruit trees growing under such conditions are not a success; that this is not the case is proved by the existence of the good specimens so frequently seen in the western counties. However, much depends upon the variety chosen and the kind of tree selected for planting. Weak-growing varieties known to form poor standards are totally unsuitable for the purpose, and if used will be most disappointing. Free growers should be chosen, such as Bramley's Seedling Apple and Pitmaston Duchess Pear.

The cultural requirements, such as planting, pruning and spraying, are similar to those employed for trees growing in an orchard. *John Coombes, N.D.H., County Instructor, Gloucestershire.*

MARKET FRUIT GARDEN.

November, with 7·77 inches of rain, rather more than October of last year, was the wettest month in my district since November, 1926. Ponds, which had been very low all the summer, were quickly filled to the brim, and large areas of low-lying land were flooded. The chance of getting any planting done before Christmas is now very remote, but I have very little of this work to do. There are several blocks of worn-out trees to be grubbed, and a good many trees to be removed from the plantations to prevent overcrowding. Most of the latter have now had all the branches sawn off and the wood cleared away, so as to facilitate winter spraying. There is no hurry for the grubbing of the stems and roots, which can be done as time permits. There is a great deal of winter work to be accomplished and the time seems to be all too short for it. Spraying with tar-distillate wash has first claim on attention whenever conditions are suitable. Interruption by frost, rain, and wind generally makes this a protracted business, and it is not wise to miss any opportunity which occurs after the end of November. Pruning will be unusually heavy, owing to the amount of growth produced as a result of last year's pruning and manuring. It would be a good thing if this could be finished before spraying, but that is quite impossible, as it occupies the more skilled hands all the time that can be spared up to the end of March and often later. The distribution of fertilisers will take some days, for this has to be done by hand. Finally, there are drains to repair, hedges to trim, and ditches to clean. Fortunately, digging is a thing of the past. I manage without this root-destroying operation even among bush fruits, and they are all the better for the omission.

Pruning.

Pruning is now a very different operation from what it was last winter. Then many of the trees were in very low condition, and everything was done to induce them to make growth. Spurs were thinned out and worn-out branches cut back severely to points where there seemed to be signs of greater vitality. This winter, pruning is concerned mainly with the young shoots, a much more enjoyable business. Last year's hard pruning, in conjunction with manuring, certainly proved successful in producing growth—too much of it in some cases. Now that I know that I can put vigour into the trees by manuring whenever it is necessary, I am not anxious to prune for growth. It seems to be a foolish business to force a lot of shoots every summer and cut them off each winter. Not only does this make a great deal of work, but the shoots crowd the tree and shade the fruits during the summer. I want to get back now to my old plan of merely thinning out in the case of all but the weakest growing varieties. Some trees which were not severely pruned last winter, because there was not time to deal with all of them, have not made anything approaching the same amount of shoot growth; but they have made plenty of fine fruit buds. That seems to me to be the ideal condition; the manures are utilised to make fruit buds instead of useless growth.

So long as mature trees show vigour in the leaf and form plenty of buds, what need is there of shoot extension? Trees in that condition may be manured every year without fear of getting them over-nitrogenous and so spoiling the quality of the fruits; and there may be some hope of getting them to bear annually. But it is not an easy matter to work back to this condition once pruning has produced a lot of shoots. I am trying to do it by leaving the leaders untipped and cutting unwanted laterals back to a fruit bud, where there is one, instead of spurring them in the ordinary way. The above remarks refer to Apples. In the case of Plums I do not mind how much growth is produced, within reason. Plenty of vigour is necessary for high productiveness in Plums; and there is not the same danger of spoiling the appearance and quality of the fruits that there is with Apples and Pears. However, Plums seldom receive any pruning beyond any necessary thinning out, because of the danger of introducing silver-leaf. They will, therefore, bear manuring on a more generous scale than Apples and Pears.

Red Spider.

Two dry summers in succession have greatly favoured the fruit tree red spider, which is different from the species found under glass. Growers everywhere are complaining that their trees are red with the eggs this winter. It is well-known that this pest has increased since the introduction of tar-distillate winter washes, which fail to destroy the eggs of red spider, but unfortunately do kill those of several insects which used to prey upon the red spiders and keep them under control. In my plantations, and in a good many others, the trouble is worst on Plums. On Apples, the insect is very largely controlled by the lime-sulphur wash used around blossoming time against scab. Plums do not receive this wash, and therefore the red spider increases without hindrance. It is the pre-blossom application of lime-sulphur that gives the best control on Apples, because the wash is then used at considerable strength, commonly one part in thirty. When this is applied at the pink bud stage of the bloom it catches the majority of the spiders when newly hatched. Any that hatch later are no doubt discouraged by the weaker post-blossom applications of lime-sulphur.

Unfortunately, lime-sulphur cannot be used so confidently on Plums. A pre-blossom application is almost useless, because Plums bloom early, before the red spiders have hatched; and the wash does not kill the eggs. After blossoming, Plums are liable to be injured by lime-sulphur at any greater strength than one in one hundred. I am informed on good authority that such a wash used ten days after the fall of the petals, and perhaps again five days later, will control the insects. I hope this may prove true; but it is the result of only one year's observation, and it stretches one's faith considerably. When the eggs are so numerous as they are this winter, something more drastic seems to be called for. There is another possible line of attack in the employment of the miscible oil washes which are now offered by several makers. These are largely used in America against the same pest, there called European red mite, and some favourable reports have been coming from users in this country. I made a small test myself two years ago, using one of these washes at five per cent. at the delayed dormant stage, and the control of red spider appeared to be excellent. It is unfortunate that these oil washes do not kill the eggs of aphis, so one does not escape the tar distillate spraying. The two applications will be costly; but I think they will pay if, as seems likely, there is to be widespread damage by red spider on Plums next summer. Where the pest is serious the leaves turn yellow and cease to function early in the season, greatly weakening the trees.

Winter Injury to Apples.

In one of my plantations of Apples, which slopes towards the south-west, a number of trees were injured by the exceptionally severe frosts of last winter. I did not find many with the bark of the stem split down, a form of frost damage which I have seen on previous occasions; but on many more the bark has died down one side—always the south or south-west side—without splitting. In some cases the dead area seems to have spread round the stem in the course of the season. Some of the worst of the trees have now been grubbed. The rest have been marked and will be watched; but I quite expect that a good many of them will not survive another summer. On hundreds of trees in this and other plantations there are small, dead areas of bark on stems and branches: but these are not extensive enough to matter.

Winter injury, although rare in this country, is quite common in America and very much dreaded. It was only recently that it occurred to me to look up this subject in American books. I find the particular form of injury mentioned above described exactly in *The Fundamentals of Fruit Production*, by Gardner, Bradford, and Hooker. It is called sunscald, and is a late winter injury to which all fruit trees and various forest trees are subject in America. Very small trees are rarely troubled, and trees old enough to develop thick scaly bark are less subject in the parts so protected. The description of the injury is as follows: "Attention is drawn to the injury by the dead and dry appearance of the bark on the south-west side of the trunk where the sun strikes strongest between noon and two o'clock. Sometimes the area is filled with a fermented fluid and the injury is called 'sour sap.' Later the bark may loosen and fall away, leaving an exposed area of dead sap wood. Many trees pruned to an open centre are affected at the crotch or even high on the south side of those scaffold limbs that lean to the north. In this last position the sun's rays are received nearly at right angles, and the injury there is in many cases very severe. The chief importance of this injury lies in its ultimate effects rather than its immediate results. It leads at once, obviously, to partial obstruction of conduction of nutrient and food materials; but of greater moment is the exposure to fungi and insects and the resultant mechanical weakening of the tree."

No remedies are suggested; so presumably there are none, but preventive measures are possible. The south-west side of the tree is subject to extremes of temperature during the winter. It may be protected from this, and particularly from the sudden thaw which does the greatest damage, by means of a stake or bundle of straw, or even by whitewashing.

It seems to me that this type of injury is much worse than the more familiar splitting of the bark. When that occurs one simply cuts away the lifted bark on either side of the split and applies paint or some other protective dressing to the exposed area. There is an unsightly wound for a long time; but I have never known such a tree to suffer. Bridge grafting is, I believe, sometimes practised as a means of rapidly healing the wound. Possibly the sunscald type of injury ought to be treated in a similar way, the affected area of bark being cut off so soon as it is seen. This should stop the trouble from spreading round the stem, as it seems to do in some cases. The death of the bark on one side of the stem will seldom kill a tree; but if it dies all round there can be no hope. *Market Grower.*

PUBLIC PARKS AND GARDENS.

Subject to the approval of the district valuer, Mill Hill Park is to be extended by the purchase of approximately one-and-three-quarters-of-an-acre of land between the Park and the Watford by-pass road, at a cost of £750.

It is recommended that the East Ham Town Council carry out various improvements at the parks and recreation grounds, at a total estimated cost of £7,011.

Subject to the approval of the Ministry of Health, the Croydon Borough Council has agreed to the purchase of land at Purley Way for playing fields.

The Hendon Urban District Council is considering offers by the National Playing Fields Association and the Carnegie Trust of grants amounting to £2,000 towards the acquisition of an open space near the Welsh Harp.

The Corporation of Stoke-on-Trent has passed a resolution to the effect that Dovedale should be created a national park and pledges itself to support in every possible way the efforts that are now being made to save Dovedale and its unique surroundings.

SOCIETIES.

ROYAL HORTICULTURAL.

December 10.—The last show of the year, which was held in the new Horticultural Hall, Westminster, was unexpectedly bright and attractive, and fairly well filled the large building. It was also noteworthy for the exceptionally high quality of many of the exhibits, and that six Gold Medals were recommended for different displays. Four of the Medals were for superb collections of Orchids, one was for a magnificent group of Begonia Gloire de Lorraine, and the other Gold Medal was for a large exhibit of dessert fruits. Orchids, of excellent quality, were so extensively shown that they would have made a show in themselves. Cypripediums of very many valuable sorts predominated, but there were also many good plants of Odontoglossum, Vanda, Calanthe and hybrids of Cattleya and Laelio-Cattleya. The Orchid Committee recommended two First Class Certificates and eight Awards of Merit to novelties; the latter were all to Cypripediums. Begonias, Chrysanthemums, Carnations and ornamental trees and shrubs were the chief floral features. The Floral Committee recommended four Awards of Merit to new Chrysanthemums. Beyond the large fruit exhibit, the Fruit and Vegetable Committee had no business of importance to transact.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart., (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Frederick J. Hanbury, Prince Shimadzu, Mr. Lionel de Rothschild, Mr. Richard Thwaites, Mr. T. Armstrong, Mr. A. McBean, Mr. E. R. Ashton, Mr. Fred K. Sander, Mr. Robert Paterson, Mr. Clive Cookson, Mr. Charles H. Curtis, Mr. H. G. Alexander, Mr. W. Hatcher, Mr. A. Dye, Mr. J. E. Shill, Mr. S. Flory, Mr. H. H. Smith and Mr. J. Cowan.

First Class Certificates.

Miltonia Lydia, Stonehurst var. (*M. Princess Mary* × *M. Beau Brummel*).—A brilliant variety represented by a small plant carrying two flowers. Sepals and petals deep crimson that is quite fiery in sunlight; lip crimson-purple, paler near the base, and the reddish-brown mask is edged with white along the radiating lines, and has a few white or blush spots. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly.

Laelio-Cattleya Astroite (*Cattleya aurea* × *Laelio-Cattleya Istria*).—A very beautiful hybrid of good form and size. The sepals and petals are a lovely shade of lively pink with a yellowish underlay that appears in the centre and at the base. Lip deep yellow, edged with rose-purple and with a deep reddish-purple apex. Shown by Robert Paterson, Esq.

Awards of Merit.

Cypripedium Makeda, Stonehurst var. (*C. Charles Dillon* × *C. Cardinal Mercier*).—A bold variety that has very broad dorsal and ventral sepals, the former being somewhat contracted at the base. Dorsal sepal white, flushed with rose, heavily spotted with blackish-purple and stained with green at the base. Petals and lip green, shaded with brown, the former being edged with yellowish-green. Shown by Robert Paterson, Esq.

Cypripedium Baldovan (*C. Chloris* × *C. Nellie Pitt*).—In this hybrid the broad dorsal sepal is white, freely marked with soft purple and heavily stained with green at the base. The petals and lip are green and purplish-brown. Shown by Robert Paterson, Esq.

Cypripedium Vesper var. Virginia (*C. Vivid II* × *C. Alcibiades*).—This is a striking hybrid, flattish and well proportioned. The round, wide dorsal sepal is white, with a brown and green base that shades out to soft rose. Petals brown along the upper half, and yellowish-green on the lower half and at the apex. Lip brown, rimmed with yellow. Shown by Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns), Bridge Hall Bury.

Cypripedium Miss Dorothy Sharp (*C. Cardinal Mercier* × *C. Nubia*).—A vigorous hybrid with a wide, white dorsal sepal flushed with rose, and heavily stained with green and blackish-purple at the base. Petals and lip soft brown and green. Shown by Sir William Cooke, Bart. (gr. Mr. H. Butcher), Wyld Court, Hampstead Norris.

Cypripedium Esther (*C. Selene* × *C. concolor*).—A pretty hybrid, with a broad, white dorsal sepal, stained with yellow at the base and also partly edged with yellow; petals and lip pale greenish-yellow. We can hardly reconcile the appearance of flower and foliage with the statement that C. concolor is one parent. Shown by Mrs. Carl Holmes (gr. Mr. W. J. Penton), The Node, Welwyn.

Cypripedium Mimosa var. Monarch (*C. Moonbeam* × *C. Christopher var. Grand Duke Nicholas*).—An attractive pale green form, with a broad margin of white on the dorsal sepal, and median lines of purplish-brown on the petals. Shown by Messrs. Cowan and Co.

Cypripedium Gerda (*C. Swallow* × *C. Garibaldi*).—A distinct, attractive and highly burnished hybrid, and well proportioned. The rounded dorsal sepal has a white margin around a large central greenish area that is heavily spotted with blackish-purple. The petals are green and brown with dark purple spots on the basal parts of the lower half; lip green, shaded with brown. Shown by Messrs. H. G. Alexander, Ltd.

Cypripedium Juliet var. magnificum (*C. Mulatto* × *C. Swallow*).—A beautiful Cypripedium with a white, purple-spotted dorsal sepal, yellowish-green and brown petals, spotted with purplish-brown, and a greenish-brown shaded lip. Shown by Messrs. H. G. Alexander, Ltd.

Groups.

Fred. J. Hanbury, Esq. (gr. Mr. S. Farnes), Brockhurst, East Grinstead, exhibited a very large group which was a splendid effort from a private garden. In the centre, Brasso-Laelio-Cattleya Ursula and Laelio-Cattleya Illustris were grouped with Cymbidiums, forms of Laelia anceps, Platyclinis Cobbiana and Masdevallia tovarensis. To right and left were Cypripediums in great variety backed by well-grown Odontoglossums and Vanda coerulea. We noticed pleasing examples of Stenoglottis longiflora, Lycaste Skinneri, Maxillaria picta, Restrepia striata, Miltonia vexillaria var. Leopoldii and Sophronitis grandiflora set among such good Cypripediums as C. Christopher, C. Reindeer, C. Goliath, C. Cyclops, C. Perseus, C. Stamperland, C. Midas, C. Lord Wolmer, C. Golden Fleece, C. Maudiae, C. Niobe and C. Monialis var. Hilda Sharp.

Another fine amateur's display was the superb group arranged by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly. Vanda coerulea, beautiful Odontoglossums, Cymbidiums, Cattleya Imperial and Odontiodas were associated to form the central feature of this charmingly arranged display. Outstanding plants, set amid Cypripediums in extensive variety, were Laelio-Cattleya Schroderae var. Alpha, with fourteen flowers, and L.-C. Schroderae with a dozen handsome blooms; Dendrobium Coelogyne, Coelogyne Mooreana, Laelio-Cattleya Lucifer, L.-C. Golden Oriole, and Angraecum Eichlerianum. Oncidium varicosum var. Rogersii was used to form a graceful background, while the foreground and intervening spaces were filled with Cypripediums, all in the best of condition.

Cypripediums were shown splendidly, extensively and in great variety by Messrs. H. G. Alexander, Ltd. Moss and low Ferns were used to set off the well-grown plants, and Palms provided a background. A few of the outstanding kinds were C. Juliet, C. Cygnet, C. Corsair, Westonbirt var., C. Ballet Girl, with its white dorsal and ventral sepals; the deep hued C. Doris Stanton, C. Puffin var. Sultan, C. Baldur var. magnificum—of C. Fairrieanum parentage; C. Nydia, Westonbirt var., the well-named C. Golden Fleece, and C. Nidas, the big and bold C. Anak, C. Cairo, C. Mikado, C. Minotaur, Westonbirt var., and the handsome C. Lucifer.

Under the clock, Messrs. Charlesworth and Co. displayed Orchids beautifully, arranging a very fine group which had a large specimen of Cymbidium Doris as a centrepiece; this had eight spikes and a total of one-hundred-and-forty-nine flowers. Odontoglossums were a prominent feature of this group and included good spikes of O. Réve d'Or, O. Draco, O. crispum, O. c. var. xanthotes, O. Theckla, O. Fabia, O. Nada and O. Alva. Other fine things were Vanda coerulea, Oncidium Papilio, Coelogyne Mooreana, Cattleya Clotho, Potinara Camella, the curious Trichocentrum porphyrio, Miltonia Bleuana, Sophro-Laelio-Cattleya Alcon, the brilliant Odontioda Mossiae, O. Ruth, with seven large flowers, and Cycnoches pentadactylon.

S. G. Brown, Esq. (gr. Mr. Thurgood), Brownlands, Shepperton, contributed a very pretty group, lightly arranged, consisting of Vanda coerulea in good form; the lovely white Calanthe Harrisii, the brilliant C. Angela, Odontioda Zampa, O. Bradshawiae, Cymbidium Tracyanum, C. Hanburyanum, Odontoglossum Endymion, numerous Cypripediums and the interesting Gomeza planifolia, Lycaste costata, Vanda Amesiana, the old and sweetly-scented Maxillaria picta, and Cymbidium erythrostylum.

Lady Haddon (gr. Mr. O. Hayles), Rossway, Berkhampstead, showed a group of large plants of Cypripedium insigne, C. i. var. Sanderae, C. Ashburtoni, C. Leeanum and C. villosum, all freely flowered.

Messrs. Armstrong and Brown confined their efforts to a splendid display of fine Cypripediums—a battalion of them. A few that attracted our attention in this large collection were C. Warrior, C. Goliath, C. Memoria var. J. H. Walker, C. Icarus, C. Gwen Hanmer var. Phil, C. W. H. Page, C. Hya, C. Prince Albert, C. Nirvana, C. Golden Glory, C. Chrysostum var. Richard Fort, C. Makeda, and the heavily spotted C. Orbis. Messrs. Harry Dixon and Sons staged a few Cypripediums and Odontoglossums, the latter including good examples of O. crispum.

Messrs. Cowan and Co. made a special feature of Cypripediums arranged with a background of Oncidium varicosum var. Rogersii, O. boissyense and Cattleya Maggie Raphael. Leading Cypripediums were C. Lord Derby. C. Elatior, C. Mrs. Rickards var. Joyce Hanmer, C. Chesham, C. Regina Seymouriae, C. Maudiae var. magnificum, C. Ponticus, C. Nora and the very dark C. Chloe. Messrs. A. J. Keeling and Sons showed a small group of Orchids, chiefly Cypripediums, that included C. Greenjack, C. Mrs. Carl Holmes, C. Yeoman, C. Makeda of brilliant colouring, and C. Macaw var. magnificum.

Messrs. Sanders exhibited a large group wherein Cymbidium Tracyanum, C. giganteum and Phalaenopsis Rimestadiana were outstanding features. Cypripediums were included and shown in considerable variety, while Cattleya Mrs. James Watson, C. Eleanor var. alba and C. Bridal Veil were well shown. Along the front of this exhibit were Oncidium cheirophorum, Masdevallia tovarensis, Cypripedium niveum, Sophronitis cernua, Mormodes Buccinator, and Sarcanthus acutifolium. Cypripedium Big Ben, C. Euristopher, C. Yeoman, C. Edzell, C. Chesham, Langley var., C. Mrs. Carl Holmes, and C. Ranger, all with broad dorsal sepals. were conspicuous in the group arranged by Messrs. Black and Flory.

Notable sorts in the small collection of choice Orchids staged by Messrs. Stuart Low and Co. were Oncidioda Cora, Odontioda The Prince, Odontoglossum Miguelto and O. Amethyst; various beautiful Laelio-Cattleyas including L.-C. Nella, L.-C. Sladdenii and L.-C. Evadne; Brasso-Cattleya Nestor, B.-C. Denistor and B.-C. Juliet, and Cattleya Cooksonae. They also had grand specimens of the lovely white Coelogyne Mooreana, and the richly coloured Sophronitis grandiflora, and a choice collection of Cypripediums. Most noteworthy in the collection arranged by Mr. J. Evans were the floriferous specimens of Cypripedium insigne var. Sanderae, C. Maudiae, C. Vashtii and numerous others, and he also showed excellent Cymbidiums. In the display set up by Messrs. Sutton Bros. the numerous Cypripediums were the chief feature, their Cattleyas and allied Orchids also being very good.

The grand collection of Orchids set up by Messrs. J. and A. McBean contained many excellent specimen plants, notable among which were Cymbidium Doris, C. Orion, and an unnamed hybrid of rich colouring; a fine Odontioda hybrid; Brasso-Cattleya British Queen, Laelio-Cattleya Schröderae, Cattleya Imperial, several Cypripediums, including a lovely specimen of C. San-Actaeus, and the richly coloured Sophro-Laelio-Cattleya His Majesty, and S.-L.-C. Ramona. They also had a splendid plant of the small, rich orange-scarlet-flowered Epiphronitis Veitchii.

Mr. T. Bones staged large specimen plants of various Cypripediums, including C. Leeanum var. superbum, C. Wallisii, C. Leeanum var. roseum, C. Goliath, C. nitens and C. Athene var. pallens.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. G. W. Leak, Mr. A. E. Vasey, Mr. James B. Riding, Mr. Donald Allan, Mr. M. C. Allwood, Mr. B. R. Long, Major George Churcher, Mr. W. B. Gingell, Mr. R. Findlay, Mr. D. B. Crane, Mr. E. R. Janes and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. W. J. Bean, Miss E. Willmott, Mr. T. W. Taylor, Mr. A. Bedford, Mr. F. G. Preston, Mr. Reginald Cory, Mr. L. R. Russell, Mr. T. Hay, Mr. E. H. Wilding, Mr. C. Williams, Mr. G. Yeld, Sir William Lawrence, Bart., Mr. E. A. Bowles, Hon. Henry D. McLaren, Mr. W. G. Baker, Mr. Amos Perry, Mr. R. W. Wallace, Mr. R. C. Notcutt and Mr. N. K. Gould, Secretary.

Awards of Merit.

Chrysanthemum Kenneth Hastie.—See National Chrysanthemum Society's Awards in our issue of December 7, p. 455. Shown by Mr. H. Shoesmith, junr.

C. Balcombe Bronze.—Also see N.C.S. Awards, p. 455. Shown by Mr. A. G. Vinten.

C. Balcombe Sunray.—A small market Japanese variety of bright yellow colour, lightly stippled with chestnut. Shown by Mr. A. G. Vinten.

C. Thanksgiving Pink.—A valuable Japanese variety of good market type and size. The colour of the substantial flowers is a deep pink. Shown by Messrs. Keith Luxford and Co.

Groups.

Immediately inside the hall there was a splendid exhibit of Begonia Gloire de Lorraine, sent by Samuel Wallrock, Esq. (gr. Mr. W. H. Holloway), The Manor House, Stanmore, Middlesex. The many plants were exceptionally well-grown and bore immense quantities of bright pink flowers. On a wall space there was also a good exhibit of the same variety of Begonia by E. G. Hulton, Esq. (gr. Mr. J. Dines), Downside, Leatherhead, which also illustrated exceedingly good cultivation.

Carnations were again well shown, and the blooms of Laddie in the several exhibits were of especially fine quality. In addition to an imposing stand of Laddie, Messrs. C. Engelmann, Ltd., staged Red Laddie, Topsy and Chintz of great merit. A vase of Wivelsfield Buttercup in the exhibit of Messrs. Allwood Bros. was of particularly rich colour, and they also included many blooms of Spectrum, Laddie and Harmony. Messrs. Stuart Low and Co. gave prominence to the deep rosy-cerise variety Countess of Harefield, and also had good vases of R. A. Nicholson, Kathleen, Thomas Ives and Eileen Low.

On a considerable floor space, Messrs. Walter Blom and Sons, Ltd., had an attractively arranged group of Azalea indica varieties, Begonia Gloire de Lorraine and Cyclamens, with very well-grown greenhouse Ferns in variety. The Azaleas predominated and these were low standards and bushes of considerable merit.

Chrysanthemums, mostly of the varieties of value for market sale, made a bright display of colour. Mr. A. G. Vinten had an extensive selection of well-grown flowers. His Japanese varieties included Golden Butterfly, Mayfield unrise, Sungold and Cheshunt White. Among the many good Singles were Mrs. J. Palmer, Mr. J. A. Burrell, Reginald Godfrey and Challenger. The Singles so well shown by Messrs. Keith Luxford and Co. included Challenger, Sunray, Absolute and Royal Red, while chief among the Japanese varieties were Friendly Rival, of rich golden colouring, Aurora, Enfield White, December Bronze and Balcombe Beauty.

An attractive group of hardy trees and shrubs, arranged by Messrs. L. R. Russell, Ltd., included large specimens of Griselinia macrophylla var. variegata, Cupressus Allumii and the narrow-leaved Myrtus Jenny Reitenbach. Messrs. Baggesens showed a number of useful Conifers in considerable variety. Those of golden colour included Thuya occidentalis var. Rheingold, Thuya o. var. lutea, Cupressus plumosa var. aurea and Juniperus japonica var. aurea. They also showed a good example of Libocedrus decurrens and upright Irish Junipers in a variety of sizes.

A number of interesting alpines and a miniature rock garden were shown by Mr. George E. P. Wood, who also staged small Conifers and a batch of Parochetus communis bearing its deep blue-coloured, Pea-like flowers. The Misses Hopkins made a miniature rock garden, in which they placed appropriate plants, and also showed vases of Jasminum nudicaule in flower.

Exhibits of paintings and garden sundries etc., were numerous. Messrs. Boulton and Paul, Ltd., erected a small glasshouse and garden frames; the Battle Steel Window Co. had ornamental metal gates, tubs, etc.; Messrs. Drew, Clark and Co. had a collection of ladders, and Messrs. Sanders and Co. and the Purbeckston Co. showed garden ornaments in stone.

A summerhouse of ornamental design was erected by Messrs. C. White, who also showed garden seats, wheel-barrows, etc., and the Neolite Works exhibited their special garden paving stones.

There were numerous other small exhibits of subjects pertaining to gardens and gardening, and several of jams and preserves.

Notable among the exhibits of paintings were the lovely collections of flower studies by Mr. E. A. Bowles and Mr. Frank Galsworthy, respectively. Miss Winifred Walker had an interesting collection of paintings of North American plants and the R.H.S. staged various *Botanical Magazine* paintings. Other exhibitors of paintings included Mrs. A. F. Compton, Miss Barbara Walkoff, Mrs. R. Boyle, Miss Kathleen H. Miller, Miss Joan Russell, Miss Winifred M. A. Brooke, Miss Edith A. Andrews, Miss M. Lilian Heish, Mrs. M. Townsend and Bain Garrard. Mr. Percy S. Cane showed garden designs.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the chair), Mr. H. S. Rivers, Mr. J. Cheal, Mr. W. A. Divers, Mr. H. Markham, Mr. F. Jordan, Mr. A. Poupart, Mr. A. Bullock, Mr. J. Wilson, Mr. P. A. Tuckett, Mr. A. W. Metcalfe, Mr. G. F. Tinley, and Mr. A. N. Rawes, Secretary.

One new seedling Apple was shown before this Committee, but was not considered any advance on existing standard varieties. There were also numerous Apples for naming.

Groups.

A magnificent collection of fruits was staged by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Aldenham, embracing grand bunches of Grapes, Apples in good condition, richly coloured and in great variety; Pears in variety, and Medlars. Grapes included Gros Maroc, Alicante, Cooper's Black, Appley Towers, Alnwick Seedling and Lady Downe's Seedling, while among Pears we noted the small-fruited Zéphirin Grégoire, Catillac, Basiner, Dr. Trousseau, Bergamotte Esperen, Uvedale's St. Germain, Beurré de Naghan and Glou Morceau. The Apples were exceptionally fine, especially the large dishes of King of Tompkins County, Hoary Morning, Blenheim Pippin, Newton Wonder, Emperor Alexander and Gascoyne's Scarlet, other sorts shown well including Lord Derby, Golden Noble, The Queen, Cox's Orange Pippin, Adams's Pearmain, Tyler's Kernel, Striped Beefing and Bramley's Seedling.

The following awards have been made to the undermentioned vegetables by the Council of the Royal Horticultural Society after trial at Wisley.

Cauliflowers.

Awards of Merit.

(6) *Early Six Weeks*, sent by Messrs. Barr and Sons; (78 to 93) *All the Year Round*, sent by Messrs. Hurst, Messrs. Zwaan and van der Molen, Messrs. Dobbie and Co., Ltd., Messrs. Daniels Bros., Messrs. James Kelway and Son, Messrs. Watkins and Simpson, Messrs. E. Webb and Sons, Messrs. Finney, Messrs. W. H. Simpson, Messrs. Clucas, Messrs. Cullen, Messrs. Nutting, Messrs. Dickson and Robinson, Messrs. R. H. Bath, Ltd., Messrs Barr and Sons, and Messrs. Harrison; (94) *All the Year Round Selected*, and (95) *All the Year Round, Driancourt's Stock*, by Messrs. James Carter and Co.; (96, 97), *All Seasons*, by Messrs. Harrison, and Messrs. Cooper Taber and Co., Ltd.; and (98-101) *Driancourt*, by Messrs. Nutting, Messrs. R. Veitch, Messrs. Morris, and Messrs. Speed (all alike). (107) *Danish Giant*, sent by Messrs. Zwaan and van der Molen. (124 and 125) *Reliance*, sent by Messrs. Dickson and Robinson and Messrs. R. H. Bath, Ltd.

Highly Commended.

(21) White Queen, sent by Messrs. Speed; (33) Primo, by Messrs. Zwaan and van der Molen; (68) Early Favourite, by Messrs. Barr and Sons; (110) Danish Giant, by Messrs. Hansen; and (137) Le Cerf, sent by Messrs. Zwaan and de Wiljes.

Commended.

(3) Early Dwarf Best of All, sent by Messrs. Barr and Son; (25) Snowball, by Messrs. Dobbie and Co., Ltd.; and (56) Mont Blanc, sent by Messrs. Clucas.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on November 12, 1929, at the Town Hall, Manchester, in conjunction with the Chrysanthemum Show of the Royal Botanic Society of Manchester and Northern Counties, the members of Committee present were, Messrs. Henry Astley Bell (in the chair), A. Burns, A. Coningsby, J. Evans, W. J. Morgan, and H. Arthur (Secretary). Mr. A. E. Dale was invited to sit with the Committee.

First Class Certificates.

Cypripedium Trijo (*C. Antinous* × *C. Odin*): *C. Miss Queenie Dale* (*C. G. D. Nicholas* × *C. Eurybiades*); and *C. Arduco* (*C. G. D. Nicholas* × ?), all from A. E. Dale, Esq.

Award of Merit.

Cypripedium Mowghlii (*C. Pyramus* × *C. Becktoniae*). From A. E. Dale, Esq.

Cultural Certificates.

To Mr. J. Byram, for Odontoglossum grande and Cypripedium Goliath: and to Mr. A. Coningsby, for Laelio-Cattleya Ivanhoe var. Desdemona and L.-C. Schroderae.

Groups.

Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns), Bury, staged a Gold Medal group of Cypripediums in variety, among which were a number of home-raised seedlings. Mr. John Evans, Colwyn Bay, was also awarded a Gold Medal for a mixed group of Cattleyas and hybrids in variety, Cypripediums, Odontoglossums, Vanda coerulea and Oncidiums, the whole making a pleasing display.

Mr. D. McLeod, Chorlton-cum-Hardy, was awarded a Silver Medal for a small group of Cypripediums in variety; Hy. Astley Bell, Esq. (gr. Mr. Byrom), Garstang, staged Cypripediums and Odontoglossum percultum var. Mars and O. grande; Capt. W. Horridge (gr. Mr. Coningsby), Bury, showed hybrid

Cattleyas; and A. E. Dale, Esq., Wirral, and Messrs. A. J. Keeling and Sons showed Cypripediums.

At the meeting held on November 29, 1929, the members of Committee present were, Messrs. J. B. Adamson (in the chair), A. Burns, A. Coningsby, A. E. Dale, J. Evans, A. Keeling, W. J. Morgan and H. Arthur (Secretary).

First Class Certificates.

Cypripedium Buddha (*C. Christopher G. D. Nicholas* × *C. Warrior*); *C. Fad* (*C. Chrysostum* × ?); and *C. Eurystopher var. Daleii* (*C. Eurybiades* × *C. Christopher G. D. Nicholas*), all from A. E. Dale, Esq.

Cypripedium Vesper var. Virginia (*C. Vivid II* × *C. Alcibiades*). From Mrs. Bruce and Miss Wrigley.

Cypripedium Amazon var. Sultan (*C. Memoria var. F. M. Ogilvie var. Rex* × *C. Perseus*). From Captain W. Horridge.

Awards of Merit.

Cypripedium Amun Ra (*C. Gwen Hannen* × *C. Nirvana*); and *C. Genitor* (*C. Earl of Tankerville* × *C. Vashti*). From A. E. Dale, Esq.

Award of Appreciation.

Cypripedium Nepertiti (C. bingleyense × C. Alport Caesar). From A. E. Dale, Esq.

Botanical Certificate.

(First Class.)

Zygopetalum Wendlandii. From Messrs. A. J. Keeling and Sons.

Groups.

J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool, staged a group to which a Silver-gilt Medal was awarded, showing Cypripedium Boltonii, C. Titan, C. Gurkha, C. Viking, C. Cavalier, West Point var., C. F. M. Ogilvie var. The Premier, C. beechense var. superbum, C. Thisbe, C. Stamperland, C. Draco, Westonbirt var., C. New Year, C. Everest, C. Alpha var. magnifica, C. Rosettii, and others, in grand condition.

A. E. Dale, Esq., Wirral, and Mrs. Bruce and Miss Wrigley showed Cypripediums in variety; Captain W. Horridge staged Cypripedium Louvain and C. insigne, Yellow var.; Messrs. A. J. Keeling and Sons, Bradford, showed Cypripedium Prince Albert, C. J. H. Walker, C. Leeanum, C. Gratrixiae; Odontioda Codeham var. grandis, with Barkeria spectabile. Mr. John Evans, Colwyn Bay, staged Miltonia William Pitt var.

The next meeting of this Society will be held at the Houldsworth Hall, 90, Deansgate, on December 20, 1929. The Committee will sit at 12 o'clock noon.

The meeting on January 10, 1930, is set apart for a special show, at which A. E. Dale, Esq., will present two prizes for the most meritorious displays, open to all members, and it is hoped that appreciation of this offer will be shown by a record meeting.

ROYAL CALEDONIAN HORTICULTURAL.

Mr. J. T. Jeffrey, Director of Parks, presided over a largely attended meeting of the above Society on December 3, when a lecture on "Chrysanthemums" was delivered by Mr. James Beats, Dundee.

The lecturer described the Chrysanthemum season, which was nearly at its end, as one of the finest ever experienced. From the beginning of August until the middle of November, early and early-winter sorts gave a superabundance of bloom, both outside and under the protection of frames that has seldom been equalled in Scotland, and the fine weather experienced during the months of September and October so built up the later varieties that finer displays of large Japanese varieties have never before been seen at the different Chrysanthemum Shows. In the opinion of Mr. Beats, the Chrysanthemum was undoubtedly our most popular, and certainly our most profitable, winter flower. For five months of the year it was the main source of the florist's cut flower supply. The plentiful supply of cuttings, the ease with which they can be propagated, their simplicity of culture and their free-blossoming propensities, without the expense of much artificial heat, and the long time they remain fresh after being cut, made them indispensable and one of the most profitable garden crops to grow, coming second only to Tomatos. The favourite type at the present time was partially disbudded. These are easily handled, growing nine to twelve blooms on every plant, firm, stout of stem and easily adapted for all kinds of room decoration.

Discussing the early-flowering outdoor Chrysanthemums, the lecturer advocated cleaning the roots when lifted by placing them under a water-tap so as to remove the eggs of slugs deposited at the base of the stem, after which they should be boxed and placed near the glass to promote sturdy cuttings. In his experience the best and quickest method of striking cuttings was to prepare a small bed near the hot-water pipes in an ordinary greenhouse with a temperature of 55°. Fill the bed with a mixture of half sand and half granulated peat or pulverised moss-litter, and insert the cuttings rather deeper than is usually done, and expose them to full light.

At the close of the lecture a long and interesting discussion was initiated by a question, "What is a Single Chrysanthemum?" Opinions differed in regard to the classification, but the majority of the speakers favoured the view that a single bloom had only one row of petals and all flowers with two or more rows should be regarded by judges as semi-double.

Prominent among the exhibits was a collection of fifteen varieties of Pears grown at Gordon Castle Gardens by Mr. Charles Webster, gardener to the Duke of Richmond, who had taken the trouble to describe the aspect of the wall, and the stock on which the fruits were grown, together with comments regarding fertility, quality, etc. Doyenné du Comice grown on a south-west wall on the Pear stock, was the best quality Pear in cultivation, but it was not a heavy cropper. Conference, on an espalier and on the Quince stock, was one of the best cropping sorts; while Marie Benoist on a south wall, and grown on the Quince stock, was a most regular bearer, but the quality was not always good. It required a warmer autumn than is usually experienced in Scotland. Marie Louise, on a south-west wall, fruited equally as well on the Quince as the Pear stock, when the former is double-grafted. Hacon's Incomparable was represented by fruits produced on Quince and Pear stocks, and the other varieties consisted of Durondeau, Alexandre Lambré, Beurré d'Avalon, Beurré Six, Doyenné Georges Bourcher (equal to Doyenné du Comice, but later), Passe Colmar, Beurré d'Arenberg, Blickling and Admiral Gervais (a fine cropper). The excellence of the exhibit was acknowledged by the award of a Silver Medal.

HARROGATE AND DISTRICT HORTICULTURAL.

The above Association held its third annual show of Chrysanthemums, etc., in the Winter Gardens, Harrogate, in late November. The show was very successful, close upon three hundred exhibits being staged.

In the class for eighteen Japanese Chrysanthemums, on boards, H. Hirst, Esq., gained the first place, also the N.C.S. Certificate, closely followed by J. Armitage, Esq., who, however, gained the prize for the premier bloom, a good specimen of Red Majestic. J. Armitage, Esq., showed the best six Japanese blooms, with H. Hirst, Esq., second. P. Cardwell, Esq., was successful in gaining first place for vases of Singles, Sir W. H. Ingleby being second; while the specimen plants again made a bold display, one exhibited by J. Armitage, Esq., having no fewer than 230 blooms.

In the fruit and vegetable classes, the Harrogate Hydro Co., Sir W. H. Ingleby, and Messrs. H. Young and J. Hawkes were the principal prize-winners; while the allotment holders also staged some very fine vegetables.

The Feldman Cup, awarded to the member gaining most points in the show, went to Mr. R. Jones, while Mr. J. H. Forth carried off the Shield presented by Councillor Mackay to the most successful allotment holder.

DERBYSHIRE HORTICULTURAL.

At the monthly meeting of the above Association, held at the Guild Hall, Derby, on the evening of December 2, Mr. J. Woodward, of Draycott, was awarded a Certificate of Merit and first prize for two dishes of Apples in the professional class, showing Gascoyne's Scarlet and Peasgood's Nonesuch; Mrs. E. S. Ayre (gr. Mr. G. E. Palfreyman), The Limes, Mickleover, was a close second, with Lane's Prince Albert and Allington Pippin.

In the amateur section, Mr. C. S. Buck, Derby, took the first prize and certificate for a dish of Apples, with Charles Ross. The fruits were afterwards sold in aid of the hospital funds.

Mr. W. H. Hanbury, of the Derby Education Committee, lectured on "Water in Relation to Plants," the lecture proving extremely interesting, and well illustrated with lantern slides.

Mr. J. H. Coley, Duffield, presided, and a very hearty vote of thanks was accorded the lecturer.

WIMBLEDON GARDENERS'.

On the evening of November 27, a meeting of this Society was held at Queen's Hall, Wimbledon, when Mr. H. Young, Vice-Chairman, presided over a somewhat smaller attendance than usual owing to the bad weather.

Mr. G. B. Begg, John Innes Horticultural Institution, lectured on "The Ideal Commercial Orchard." Every point connected with commercial fruit-growing was discussed. The grouping of trees with reference to full or partial self-fertility or sterility was dealt with thoroughly, together with the influence which insect pollenation would have upon them. Lists of trees were given which could be advantageously grouped according to the date and length of time of their blossoming period. Another important point was the proximity to a main line railway station, and to roads suitable for heavy traffic. Questions were asked at the conclusion of the lecture and suitably answered.

Mr. T. Price proposed a vote of thanks to Mr. Begg for his instructive lecture, and this was carried unanimously.

READING GARDENERS'.

The fortnightly meeting of this Association, held in the Abbey Hall, on Monday evening, December 2, was presided over by Mr. Frank E. Moring, the President, and there was a large attendance of members.

The lecture was on "Hardy Fruits," by Mr. M. Goddard, Bear Wood Gardens, Wokingham, who dealt with his subject in a most able and practical manner. He said that growers in England can grow, and do grow, the finest fruits in the world, although the variable climate in this country did at times make it a difficult problem. The subject of hardy fruits was an exceedingly broad one, and therefore he confined his remarks to a few of the best methods to adopt in the successful culture of Apples, Pears, Plums, Gooseberries and Currants.

A lengthy and animated discussion followed, and at the close a hearty vote of thanks was tendered to Mr. Goddard for his instructive and practical lecture.

There were some excellent vegetables staged in the various competitions. For three Parsnips (eight entries) the first prize was gained by Mr. J. Wynn, Hammonds Gardens, Checkendon; second, Mr. H. Goodchild, Queen Anne's School Gardens, Catersham; and third, by Mr. A. Manley, Highfield Park Gardens, Heckfield. For six Leeks (five entries), the first prize was won by Mr. W. Turnham, Greenlands Gardens, Henley-on-Thames; second, Mr. A. H. Dow, Sulhamstead House Gardens, and third, Mr. H. Goodchild. For twenty-five buttons of Brussels Sprouts (ten entries), Mr, W. Garnett, Calcot Grange Gardens, was awarded the first prize; Mr. H. Tuffin, Iris Court Gardens, Pangbourne, second; and Mr. J. Wynn, third.

In the non-competitive section, a First Class

Certificate was awarded to Mr. A. MANLEY, for some remarkably fine Poinsettias, the bracts measuring from fifteen to eighteen inches across and splendidly coloured. An Award of Merit was gained by Mr. R. G. TAYLOR, Plemont, Woodley, for three varieties of Brussels Sprouts. Rhododendrons were shown by Mr. F. G. RABBETTS, Bulmershe Gardens, Woodley, and Chrysanthemums by Mr. C. J. HOWLETT, The Yews, Earley.

SCOTTISH SEED AND NURSERY TRADE.

THE twelfth annual meeting of this Association was held in the Caledonian Hotel, Edinburgh, on December 4, Mr. David Bell presiding. Reference was made in the Nursery Section of the Report to the difficulties encountered by growers in their effort to stamp out mildew and other diseases in view of their prevalence in neighbouring private gardens. While nurseries are inspected by officials of the Department, little or no inspection is made of private gardens. The subject was brought before the notice of the Department of Agriculture, which pointed out that its Inspectors could not possibly cope with the work of inspecting all private gardens, but gave attention to any case brought before its notice. It was also reported that members having nurseries and trial grounds had received agricultural abatements under the de-rating Act, and so far as seed-cleaning premises are concerned, de-rating benefits had been given to them under the classification of "Industrial Subjects," with one notable exception in Glasgow, where the local Valuation Committee allowed an appeal by the Inland Revenue against the assessors, who proposed a grant of de-rating. In all other instances such appeals were dismissed, and the Court of Session has since upheld the view that the Inland Revenue was entitled to appeal by stated case to their court. It is therefore probable that the de-rating decision of the local Committees will be contested in future, and the Association has arranged that cases in which members are interested will be handled collectively, and the costs divided among those concerned in proportion to their respective rentals.

The accounts for the past year showed a credit balance of £151, and the following office-bearers were elected:—President, Mr. David Bell; Vice-President, Mr. William Cuthbertson; Representatives of Committee—Wholesale Section, Mr. Thomas Hogg (Messrs. Alex. Cross Seed Co., Ltd.), Glasgow; Horticultural Section, Mr. John Cairns (Messrs. Austin and McAslan), Glasgow; Agricultural Section, Mr. John Watt (Messrs. W. Drummond and Sons, Ltd.), Stirling; and Nursery Section, Mr. H. Stewart Paton (Messrs. Austin and McAslan), Glasgow.

At the dinner which followed, Lord Alness (Chief Justice Clerk) in proposing the toast of "The Scottish Seed and Nursery Trade Association," commented on the character of the duties undertaken and discharged by that body relating, as they did, to horticulture, agriculture and nurseries. He professed no knowledge of the technique of horticulture, but he said he did love a garden. He could remember a manse garden in the Highlands long years ago, an old-fashioned place with old-fashioned flowers—Polyanthuses, Paeonies and Pansies, Wallflowers, Mignonette, and London Pride. Now, after many years, he had the good fortune to possess a garden which was a source of perpetual happiness to him. When his Lordship lived in London, and now during his not infrequent visits there, he never failed when the chance presented itself to visit a flower show in Vincent Square, and he always felt a glow of pride when he noted, as he often did, that a Gold Medal or a first prize had been awarded—notwithstanding their ungrateful climate—to a Scottish exhibitor. It was a great thing to "subdue the English," and if the Scottish exhibitor did not always bring it off, the imported Scottish gardener not infrequently did.

The Chairman, Mr. Bell, in reply, recalled that Lord Alness, when Secretary for Scotland, had a good deal to do indirectly with the seed trade, as it was during his term of office that the Seeds Act was introduced, and they were indebted to him for the establishment of the Plant Breeding Station. He claimed that the trade had done its best to work up to the spirit of the Seeds Act, although it was impossible to work up to the letter of it.

Mr. James Elden proposed the toast of "Agriculture." Acknowledging the toast, Mr. Alexander McCallum, of the Department of Agriculture for Scotland, admitted that the state of agriculture was grievous in the extreme, but there were two points on which all people were agreed. These were: (1) That farmers ought to take steps to get a bigger share of the actual consuming price, and (2) it was obvious that the British farmer, if he is to make any advance against opposition, must make a reduction in costs of production, by which he meant increasing production, improving quality and eliminating waste.

Professor Wright Smith submitted the toast of "Horticulture," coupled with the name of Mr. William Cuthbertson, who submitted figures indicating that the estimated value of horticultural produce—fruits, vegetables, flowers and other home products, was equal to all that was grown in England. The area covered with glass was about four thousand acres, representing in value eight millions sterling, half of which he suggested was to be found in the Lea Valley.

The health of the Chairman was proposed by Mr. John Sutherland, Forestry Commissioner for Scotland.

Obituary.

Thomas Hall.—The death occurred at Highfield, Southampton, on November 26, of Mr. Thomas Hall, who for forty years was gardener at South Stoneham House, Swaythling; for ten years to Captain Davidson, and the remainder of the period to the first Lord and Lady Swaythling. Mr. Hall was in his eightieth year, and was well-known locally as a successful exhibitor of Grapes and hardy fruits, until his retirement in 1916. He did much to assist the local horticultural Society by organising fetes on its behalf at South Stoneham House. It was through his influence, too, the summer shows of the Society were held in the grounds, and were such a great success. The many beautiful wreaths received included some from Lord and Lady Swaythling and other members of the family, all tributes of the very high esteem in which Mr. Hall was held. The funeral was attended by many of the staff at Townhill Park, Bitterne.

Joseph Lowe, V.M.H.—The grand old man of the cut flower industry, Mr. Joseph Lowe, has passed away, full of years and honour. Born at Cookham in 1843, he went with his parents to Iver when three years old, and six years later he started work as a garden boy, as even his modest earnings were of material assistance in the upkeep of the family. Observant, shrewd and blessed with an excellent memory and a love for gardening he quickly put into practice the knowledge he gained. He made his home surroundings gay with plants and flowers, and secured a frame wherein to propagate his pets. He was eighteen years of age when he became under-gardener at Water Oakley, near Windsor, and a year afterwards entered the service of Mr. Charles Turner, the nurseryman, of Slough. Family affliction led him to return to his parents so that he might help them, and that spirit of generous helpfulness remained to ennoble his long life. In 1863 he commenced business as a jobbing gardener at Uxbridge, but soon found there were other and more lucrative openings in horticulture, therefore he began to build a nursery of his own in his spare time. The first flowers he sent to market were Roses, and the modest success obtained made him decide to devote his attention to the production of cut flowers for market. He worked like a Trojan, and for a time Mrs. Lowe looked after a little seed shop that he opened in Uxbridge. In 1867 he rented two acres of land and it was not long before the name of Joseph Lowe was famous in Covent Garden for the quality of the flowers he sent. Acre followed on acre, glasshouse on glasshouse, until by 1897 Mr. Lowe had built up a wonderful cut flower business; then his health broke down under the cumulative strain of many years. It was then that he took Mr. George Shawyer into partnership, and the combination—Messrs. Lowe and Shawyer, Uxbridge—has resulted in the construction and management of what is probably the largest establishment of its kind in the world. As a recognition of his great work in the cut flower trade, Mr. Lowe was awarded the Victoria Medal of Honour in Horticulture in 1923. A fine man and of striking appearance, Mr. Joseph Lowe was as good as he was clever. He was a deacon of the Congregational Church at Uxbridge, to which he became attached sixty years ago, and to which he remained loyal when commercial success had made him a well-to-do man. He was generous to all good causes, and also "did good by stealth and blushed to find it fame." Death occurred on Wednesday, December 4; the funeral took place at Hillingdon on the following Saturday, amid abundant evidence of the high esteem and deep affection in which Mr. Joseph Lowe was held. A portrait and appreciation of Mr. Lowe appeared in *The Gardeners' Chronicle* of February 24, 1923.

ANSWERS TO CORRESPONDENTS.

ARTIFICIAL MANURES FOR A MIXED ORCHARD.—*J. M.* Apply, so soon as possible, 6 cwts. to 8 cwts. per acre of basic slag, and 4 cwts. of sulphate of potash. In March, give 5 cwts. per acre of nitro-chalk. If this treatment is too expensive, give the nitro-chalk only. It is almost certainly nitrogen that the trees need; but it is wise to use a balanced dressing if possible. If there is a good response in the first year, the dressing of nitro-chalk could be cut down to 3 cwts. per acre for future use, and the sulphate of potash to 2 cwts. The dressing of slag should supply enough phosphates for three or four years.

CULTIVATION OF ASPIDISTRAS.—*K. T.* Aspidistras may be divided and repotted at almost any time. The end of March and beginning of April is, however, the best time, as growth is then becoming active, and the plants have all the season to get well established before winter. It is not advisable to divide them while there are any partially developed leaves, as they would thus receive a severe check. They grow in any ordinary garden soil, but a good compost for them consists of three parts good mellow loam and one of leaf-soil and clean, coarse sand; to every bushel of compost you could add one five-inch potful of bone-meal, or steamed bone-flour. Aspidistras do not, as a rule, require any feeding, although they may receive occasional doses of dilute soot-water, guano, or any other approved artificial fertiliser. The size of the pots will vary according to requirements, five-inch to seven- or eight-inch pots being required for large specimens.

NAMES OF FRUITS.—*B. C.* Your Apple appears to be an unnamed seedling; from your statements concerning it, it might well be worth looking after and a stock secured.

VIOLAS AND SWEET WILLIAMS DISEASED.—*W. F. A.* The Viola and Sweet William plants are both attacked by rust fungi, Puccinia violae and P. arenariae, respectively. Pick off and burn all foliage bearing "rusty" spots. Spray the plants now and again at intervals in the spring, with either a mixture of one ounce potassium permanganate and two ounces of soft soap in five pints of water, or with Bordeaux mixture. The wash should be applied to both surfaces of the foliage. Dress the ground in which the plants are growing now with a mixture of two parts superphosphate, two parts of fine bone-meal, and one part of sulphate of potash, applied at the rate of four ounces the square yard.

Communications Received.—W. G. W.—W. H. W. F. F.—G. L. S.—C. E. J.—J. Y.—W. E. W.—A. G.—R. S. L.

THE

Gardeners' Chronicle

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Average Mean Temperature for the ensuing week, deduced from observations during the past fifty years at Greenwich, 39·2°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, December 18, 10 a.m. (Greenwich time). Bar. 30·7. Temp. 38°. Weather, Foggy.

Wilt Disease of Carnations.

In certain parts of the country the ravages caused by Wilt Disease is causing the cultivators of Carnations very serious losses, and where this is the case they will turn with more than usual interest to Mr. H. L. White's account of the disease and its remedy.* The symptoms of Wilt Disease are so varied that growers are apt to believe that several different maladies are included under the name. The wilting Carnation plant may show a collar rot—a brown rot at soil level; or wilting may be gradual and progressive—in which case infection of the wood at the junction of the main stem and branch has occurred; or the shoot dies back when the infection originates in small shoots or in snags left in cutting blooms. In the propagation house the disease generally takes the form of foot diseases, infection having occurred at the surface of the cutting. Wilt Disease, at all events when it is accompanied by one of the "rots just described," is due to one or more species of soil fungi of the genus Fusarium. No fewer than five species of Fusarium have been isolated from Wilt diseased plants, viz., F. culmorum, F. anthophilum, F. acuminatum, F. herbarum and F. sporotrichoides. Of these the first four species are known already to be associated with disease of Cereals and pasture Grasses, and it has now been shown that the fifth species, F. sporotrichoides, gives rise to bud rot of Carnations. From observations made in a commercial nursery, Mr. White has satisfied himself that the disease may be but slight in the first year of planting, but that in spring or at the height of summer of the second year the Carnations may be badly attacked, and yet more so in subsequent years. Areas bared by the disease, when replanted, prove that the soil harbours the fungus parasite, for the new plants fall ready victims of Wilt Disease. Infection may come from air, water, and soil, and the disease is the more menacing in that the fungi causing it may exist in virgin soil. In general, however, infection takes place at a wound surface, for example, at the surface of a cutting. Therefore, cuttings should be made with a sharp knife in order that callus formation may be regular and complete. Or infection may take place at ground level, for example, if a cutting be inserted too deeply the fungus may enter through a dead leaf-base. Or again, in ramming soil about the roots when planting rooted cuttings the roots may be injured and the lesion serve as a port of entry of the fungus. Remedial measures must, of course, be based on a knowledge of the habits of parasite and host. Now the optimum temperature for the growth of spores of Fusarium is 67°F., whereas that for the growth of the Carnation is 65°F. Moreover, excessive humidity of soil and atmosphere favours the growth of the parasitic fungus, therefore the good cultivator, by keeping down temperature and moisture, will insure against the disease. But inasmuch as the parasite harbours in the soil it will be necessary in the case of a serious outbreak to resort to soil sterilisation. Mr. White remarks that, although chemical sterilising agents have so far given unsatisfactory results, steam sterilisation in the few cases in which it has been adopted has given entirely satisfactory results—not only by way of preventing the disease, but also in increasing the crop of Carnations. Pending, therefore, the breeding of strains of Carnations resistant to Wilt Disease, those whose Carnations are beset by this disease would do well to try steam sterilisation of the soil in which the plants are to be grown. Readers are also referred to an account of Wilt Disease of the Carnation, in our issue of September 28, p. 237.

Good Wishes.—The Proprietors of *The Gardeners' Chronicle*, together with the members of the Editorial and Publishing Staffs, offer heartiest good wishes for the Christmas season to all readers, contributors, correspondents and advertisers.

"The Gardeners' Chronicle" Almanac for 1930.—The preparation of our Almanac for 1930 is now proceeding, and as we are anxious to include so many dates of horticultural exhibitions and meetings as possible, the secretaries of horticultural, botanical and kindred societies are invited to send us the dates of their fixtures for the coming year, to reach us on or before December 31, 1929.

"The Gardeners' Chronicle" Medals, 1929.—*The Gardeners' Chronicle* Silver-gilt Medals have been awarded at various horticultural exhibitions to the following exhibitors during the year 1929:—Birmingham (Midland Daffodil), Mr. G. H. Furness, Berrow Manor, near Burnham, Somerset; Truro, Mr. James Allen, 35, River Street, Truro, Cornwall; Cheltenham, Mrs. C. V. Butler (gr. Mr. A. J. Collins), Twyning Park, near Tewkesbury; Colchester, Mr. C. W. Diggins, 47, East Hill, Colchester; Norwich (National Sweet Pea), Mr. W. Humphrey, The Loampits Gardens, Tonbridge, Kent; Guildford (Guildford Gardeners' Association), Mr. A. E. Tylecote, Mansard, Pilgrim's Way, Guildford; Northampton, Mr. J. Adams, 43, Cobden Street, Kettering; Dublin, Captain Lewis Riall (gr. Mr. Thomas Webster), Old Conna Hill, Bray, Co. Wicklow; Aberdeen, Mrs. Harper, Fernbank, Insch.; Shrewsbury, Lord Swaythling (gr. Mr. F. J. Rose), Townhill Park, Bitterne, Hampshire; Southport, Mr. T. L. Rushton, Garstang, Lancashire; Glasgow, Mr. John A. Grigor, The Woodlands, Banffshire; Dundee, Mr. David Smith, Lochee, Dundee; Edinburgh, Mr. Duncan A. Hill, 6, Bridge Street, Kelso; Taunton, Mr. M. Baker, Manor Road, Norton-Fitzwarren, Taunton; London (National Chrysanthemum), Mr. A. Robertson, 18, Abbey Road, St. John's Wood, N.W.8; Brighton, Earl Beatty (gr. Mr. A. Barrett), Reigate Priory, Reigate.

A Cactus-growers' Association in Germany.—Cactus-growing is on the increase in Germany, succulent plants becoming rapidly popularised among all classes of the community. In order to preserve their common interests and organise the trade generally, the chief Cactus-growers, headed by F. A. Haage, of Erfurt, have formed an association, of which the immediate objects will be to make a list of fixed prices (to be revised annually), to protect themselves against competition from various sources, the formation of a "black list," and to come to an agreement on the subject of nomenclature. Membership of the association is to be strictly confined to those growing Cacti commercially.

Scottish Potato Registration Trials.—The Department of Agriculture for Scotland announces the receipt of the report of the Potato Synonym Committee on the registration and immunity trials held recently at the Plant Breeding Station. The number of Potatos undergoing their first year's test as new varieties was eighty-four, an increase of thirty-four on the figure of the previous year, while there were fifteen varieties in their second test, and four varieties undergoing a final year's extended trial. Although the Committee has reported that three of the four varieties in the final year's trial do not, in their opinion, attain the required standard, they have recommended that the grower of the remaining variety, Dunbar Cavalier, should be given an opportunity of submitting a healthy stock for re-inclusion in the final trials in 1930 or 1931. The Committee was influenced in this decision by the fact that, while the variety showed considerable promise and the stocks in the country appeared to be healthy, that included in the trials was affected with virus disease. The Committee of Management which advised the Department regarding the trials has endorsed the recommendation, which has been accepted.

Cinchona Cultivation in the British Empire.—In a recent paper, entitled "Cinchona in the Empire: Progress and Prospects of its Cultivation" (*Empire Forestry Journal*, Vol. VIII, No. 1, 1929), Dr. J. M. Cowan, of the Indian Forest Service, discusses the present position with regard to the cultivation of the Cinchona, and its future prospects. The importance of the Cinchona tree, Cinchona Ledgeriana, as a source of quinine, is well-known, so that the cultivation of it on a large scale is a subject of national importance, especially when it is realised that quinine is the chief means by which malaria can be combated, and within the British Empire we have a large proportion of the malarial areas of the world. Previous to about 1880, the world's supply of Cinchona bark was secured from the native forests in Ecuador, Bolivia and Peru, but when supplies from these sources became unreliable it was realised that attempts would have to be made to grow the Cinchona tree elsewhere if a world shortage of quinine was to be guarded against. Consequently it was introduced to India and Java during the period 1854-64, and experiments in its cultivation were carried out also in Burma, Ceylon, Malaya, the Sudan, Jamaica, Trinidad, St. Helena, Mauritius, Australia and New Zealand, although in a number of these cases the attempts were not followed up to definite conclusions. In India, Cinchona growing is now confined to Government activities, and within the Empire India is the only country where the Cinchona tree is grown on a large scale. The bulk of the world supply, seventy per cent., is produced on the Dutch plantations in Java, India only producing four per cent. Only a very small quantity of Cinchona bark is now obtained from the South American forests. India produces only one-third of the actual amount required in the country itself and is, therefore, with the rest of the world, dependent upon Java for its supply. Dr. Cowan urges that an investigation should be carried out to find suitable additional land within the Empire for Cinchona cultivation, and also research in the matter of increasing the output per unit of area. He discusses in detail the problems which have governed the cultivation of Cinchona and the methods of growing and harvesting the crop, and urges that research is very necessary with a view to determining the best quinine-producing strains of Cinchona. Dr. Cowan's paper is an excellent summary of the present position with regard to Cinchona cultivation, a subject of such vital importance to a large section of the human race.

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* "Wilt Disease of the Carnation," by H. L. White. *Fourteenth Annual Report*, 1928, Experimental and Research Station, Turner's Hill, Cheshunt, Herts.

Honours for Belgian Horticulturists. — A number of distinctions have been bestowed on some of the leading Belgian horticulturists, including that of Commander of the Order of Leopold, for M. Bauwens, Inspector-General at the Ministry of Agriculture, and M. Henry, the Director General; Commander of the Order of Leopold II, for M. Lambeau, President of the Brussels Tribunal of Commerce and of the Royal Linnean Society, etc. M. van Orshoven, Director of the Horticultural Office of the Ministry of Agriculture, has been created an Officer of the Order of Leopold.

Investigation into the Control of Rodents.—In connection with the investigations now being carried out at Oxford upon matters relating to the control of the various rodents which are a source of great annual loss to agriculturists, horticulturists and foresters, a leaflet has been circulated setting forth the type of damage done by the rodents, etc., and appealing for assistance from those interested in the making of observations and the keeping of records. Since the study of the fluctuations and control of numbers of rodents, such as voles, squirrels, rabbits, rats, etc., is inseparably connected with agriculture, horticulture and forestry, the co-operation of those associated with these professions in making certain observations and keeping records is of the greatest importance if successful work is to be accomplished in this direction. Anyone who is willing to help in this way, or who is interested in the subject, is requested to write for particulars to Mr. A. D. Middleton, University Museum, Oxford.

Gardens and the Queen's Institute of District Nursing.—The Duke of Portland writes, from 58, Victoria Street, S.W.1:—"The Queen's Institute of District Nursing, of which I have the honour to be President, desires me to ask your assistance to convey the gratitude of the Council to all those who gave valuable support this year to the National Gardens Scheme. His Majesty the King graciously allowed the Gardens at Sandringham to be opened, as in former years, and through the kindness of their owners, 690 other gardens were included in the National scheme this season. The result was that £7,765 was raised, which will be of the greatest assistance to the work of the Queen's Institute and the Nursing Associations throughout the country. The opportunity of viewing many of the most beautiful and interesting places in England and Wales has given great pleasure to garden lovers. In writing to those who opened their gardens last year, I expressed the hope that this year's result would be even more successful than last year, and I am happy to be able to state that this wish has been realised. I trust that the owners who have so kindly helped our cause in the past will do so again, and that owners of other gardens may be induced to take the same generous course. The gratitude of the Institute is tendered to the Press for their whole-hearted support, to the Railway Companies, to the Steam Ship Companies, and to the Travel Agencies, for displaying posters and for affording other means of publicity. Every endeavour will be used to make known so soon as possible the gardens which will be kindly opened during the ensuing year."

Big Pumpkins.—On p. 410 of our issue of November 23, *J. P.*, expressed the opinion that Pumpkins weighing upwards of 90 lbs. had been grown in this country. He evidently opined correctly, as Mr. A. Simmonds writes, "it is recorded (in the *Gardeners' Magazine*), that in 1821 a Mr. George Davenport, gardener to Mr. H. P. T. Aubrey, at Broomhall, near Oswestry, grew a Pumpkin weighing 136 lbs."

Mr. F. J. Foster.—Both at the Royal Horticultural Society's exhibitions and at Midland shows, Mr. F. J. Foster, gardener to the Earl of Ancaster, Grimsthorpe, Bourne, Lincolnshire, has been a most successful prize-winner with fruits and vegetables. Although Mr. Foster does not pretend to "specialise," he is an extremely capable gardener, and in charge of a very interesting garden. His experience in gardening has been obtained by employment at such famous gardens as those of Petworth Park, Syon House, Hutton Hall, Forde Manor, Culford Hall and Milton Abbey. Before taking charge of the gardens at Grimsthorpe Castle—where he receives every possible encouragement from the Countess of Ancaster—Mr. Foster was gardener to the late Hatfield Harter, Esq., at Cranfield Court, Bedfordshire.

MR. F. J. FOSTER.

Scottish Potato Trade Crisis.—At an urgency meeting of the Directors of the Scottish Chamber of Agriculture, held at Edinburgh, on Wednesday, December 11, Major Sharpe, Earlston, presiding, Mr. J. L. Anderson, Pittormie, Fife, suggested that public attention should be drawn to the extraordinary gravity of the present position of the Potato trade. He suggested a temporary measure to meet the present crisis, without prejudice to the Government's general policy, in the way suggested by Sir Harry Hope, of fixing a reasonable maximum price and keeping out imports so far as Potatos were concerned, without raising the price to consumers. Sir Isaac Connell thought they should strive for what they had already decided on—that there should be a prohibition of the import of Potatos so long as a fixed price was not exceeded, and they had home-grown Potatos to sell. They should not delude themselves into believing that schemes of co-operation and so on formed a solution. The solution was the prevention of free importation of foreign produce. The Chairman said they were tackling a very difficult proposition. His opinion was that either to ask for protection or subsidies, or even prohibition of imports, almost ran them into a political issue, and he doubted if any party in the State would support that without a mandate from the country. After further discussion, it was agreed to circularise every member of Parliament in England and Scotland and arrange, if possible, a conference with the Prime Minister and the leaders of the other parties.

Snowdonia as a National Park.—All those who love the wild beauty and grandeur of Snowdon—the highest mountain in England and Wales—and the surrounding district, will earnestly hope that success may attend the scheme now being placed before the Government Committee which has been appointed to consider and advise upon the establishment of national parks in Great Britain. This scheme has for its object the acquisition of Snowdon and the adjacent mountain groups that extend across Carnarvonshire and into Merioneth—a total of about three-hundred-and-fifty square miles. How much money will be needed to acquire this large mountainous area is not known at present, but negotiations are proceeding in view of an early meeting of the Government Committee and the Council for the Preservation of Rural Wales.

Presentation to Mr. Walter P. Wright.—Following the retirement of Mr. Walter P. Wright from the position of Horticultural Superintendent under the Kent Education Committee, after thirty-six years' service, the Kent Teachers' Association organised in his honour a reception and the presentation of a handsome piece of plate, suitably engraved. Mr. Paul, Chairman of the Association, paid a warm tribute to the recipient, who, he said, had won the esteem of the whole body of Kentish teachers by his unfailing courtesy and kindly sympathy. Mr. E. Salter Davies, M.A., Director of Education in Kent, followed, and expressed eloquently the respect and affection of the administrative staff. The presentation was made by Sir Mark Collet, Bart., Chairman of the Kent Education Committee, who voiced the high appreciation of the Committee of the work done by Mr. Wright in every branch of horticultural work, and particularly in the development of school gardening; he said Mr. Wright carried with him into retirement the respect of the whole community for long, arduous and loyal work, conducted with a high sense of public service.

A Winter Exhibition in Ghent.—The Azalea growers of Ghent, Belgium, are combining to organise a December exhibition of flowering Azaleas, Cyclamens, and other ornamental pot plants, in the vast building of the Bourse. The Burgomaster of the City, and the Comte de Kerchove de Denterghem, have promised their patronage, and large numbers of exhibits are expected, so that the show is likely to attract a good attendance. The exhibition is to be open from December 21 to 25, inclusive; the dates may surprise English readers, but in Belgium Christmas Day is not kept so sacredly as a day for the home as it has been for the last century or so in this country.

The Alpine Garden Society.—The inaugural meeting of the Alpine Garden Society was held at the Royal Horticultural Society's new hall, on December 10. Sir William Lawrence was elected President; Mr. Selwyn Duruz, Le Chalet, Montagu Gardens, Wallington, will be the honorary secretary; Mr. F. H. Fisher will be the assistant secretary for the North of England, and it is hoped to appoint an assistant secretary for Scotland. The annual subscription is 10s. 6d. and should be sent to Dr. Giuseppi, Trevose, Felixstowe; life membership has been fixed at ten guineas, The following have consented to serve on the Committee :—Mr. George Baker, Mr. George Yeld, Dr. Giuseppi, Mr. Renton, Mr. Amos Perry, Capt. Symons-Jeune, Mr. W. E. Th. Ingwersen, Mr. H. Cowley, Miss Victoria Slade, Mr. Fisher, Mr. Clarence Elliott, Viscountess Byng of Vimy, Mr. Maurice Pritchard, Mr. F. C Puddle, Mr. J. R. Pulham, Mr. G. Reuthe and Mr. Edwards. It was decided to hold the first show of this society on May 8 and 9, 1930, and to organise other exhibits throughout the season. The appointment of an Editor is under consideration, and it is hoped to publish pamphlets written by experts on different genera and the like at intervals of not more than two months.

Old Scottish Trees.—In Part I of Vol. XLIII of *The Scottish Forestry Journal*, the Editor appealed for data and facts concerning outstanding Scottish trees. A direct result of this appeal is the publication of a very interesting article in the recently issued Part 2 of the current volume entitled "Some Old Scottish Trees," in which the author, Mr. John T. Smith, has collated considerable data concerning a number of famous Scottish trees, both past and present. Among those still living is the Ash tree behind Craigmyle House, Aberdeenshire, which, according to tradition, was planted by Mary, Queen of Scots, after the Battle of Corrichie. In a garden at Leven, Fife, are a pair of Ash trees, secured as slips from an Ash tree by the grave of Napoleon in St. Helena, in 1842, two years after Napoleon's remains had been removed to France, by a Captain Younger. These trees have grafted each on to the other, and having been trained horizontally along a pergola now extend some thirty feet from the main trunk. At Prestonpans, an ancient Thorn tree marks the spot where Colonel Gardiner, Sir John Cope's commander, fell, in 1745. In Midlothian, on the Dalkeith Road, near Craigmillar Castle, stands Queen Mary's Tree, a Sycamore stated to have been planted by Mary, Queen of Scots, in 1561 ; its hollow trunk has been filled with cement in an effort to preserve it. Alleged to be the oldest specimen of vegetation in Europe, the Fortingal Yew tree, at Kenmore, Loch Tay, Perthshire, is stated to be about 3,000 years old. The original tree decayed, but new growths sprang out from the rotting trunk. At Dunning, Perthshire, an old Thorn tree commemorates the burning of the village by Mar's forces during the retreat from Sherrifmuir in the 1715 rebellion ; the base of the tree is now cased with lead. Another ancient tree which still stands, but does not seem likely to last much longer, is Rob Roy's Tree, a well-known Oak on the Glasgow to Killearn road, near the Glengoyne Distillery. In Guthrie Smith's book on the parish of Strathblane, published in 1886, the author states of this tree, "and the same Oak tree which was growing on the 'march' in 1493 is still growing on, in green and vigorous old age." It was then known as the Meikle Tree. Mr. Smith suggests that the Royal Scottish Arboricultural Society should make a collection of photographs of ancient Scottish trees and publish them, with information concerning them, in book form.

National Bulb Society's "Year Book."—One of the chief aims of the National Bulb Society, which was formed last year, is to encourage the growing of British bulbs, and with a view to furthering this object, Mr. H. W. Abbiss, Horticultural Superintendent for Cornwall, has contributed a brief account of the bulb industry in this country in the first *Year Book* published by the Society ; Cornwall and Lincoln are the chief bulb growing areas in the British Isles : for the production of early blooms Cornish bulbs should be secured, while for bulbs for general planting gardeners should place their orders with Lincolnshire growers. Other short articles appearing in the *Year Book* are "The Daffodil," by Mr. A. F. Calvert ; "Lilies," by Mr. R. W. Wallace ; "Some Wild Species of Tulip," by Mrs. E. Katherine Dykes ; "Bulbs in the Home," by Mr. W. J. Stewart ; and "Some Uncommon Bulbs." by Mr. W. H. Jenkin. A bulb-planting table, showing the best month in which to plant various bulbous subjects, the depth at which to plant and the distance apart, is included, and the *Year Book* also contains the Schedule for the Society's Spring Flower Show, to be held in the new hall of the R.H.S., on April 8 and 9, 1930. The Schedule contains thirteen classes, eight challenge cups being offered for competition. The *Year Book* of the National Bulb Society may be obtained from the Hon. Secretary, 9, Gower Street, Bedford Square, W.C.1, price 1s. to non-members, and at the reduced price of 6d. (post free), to readers of *The Gardeners' Chronicle*.

Retirement of Dr. A. B. Rendle.—It is announced that Dr. A. B. Rendle will retire from the post of Keeper of the Department of Botany in the British Museum, an office he has held since 1906, in January next, and will be succeeded by Mr. J. Ramsbottom, deputy keeper of the Department of Botany since November, 1927.

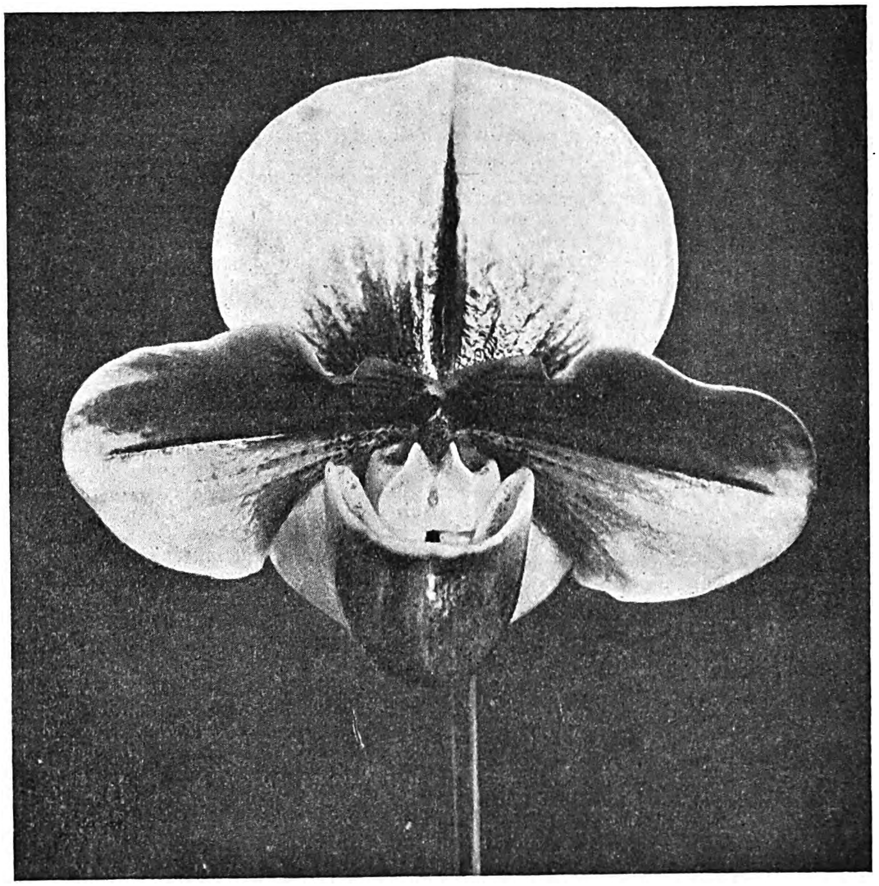

FIG. 221.—CYPRIPEDIUM VESPER VAR. VIRGINIA.

R.H.S. Award of Merit, December 10. Flowers white, rose, brown and green. Shown by Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns), Bridge Hall, Bury.

(see p. 473.)

Appointments for the Ensuing Week.—SATURDAY, DECEMBER 28: Leeds Paxton Society's Discussion on the Season's failures.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Vegetation of the Crimea.*—In the first part of Dr. Clarke's travels in various countries of Europe, etc., are several chapters wherein the details of the author's journeys in the Crimea are given. In some of these journeys, too, the doctor was accompanied by Prof. Pallas. The descriptions of Inkermann and of Balaclava (of the harbour of which town an engraving is given), possess great interest at the present moment, while an appendix containing a list of the plants gathered in the Crimea may also be serviceable to a botanist. Scattered throughout the book there are allusions to the vegetation of the country, which are interesting in reference to certain articles that have lately appeared in the *Chronicle* on this subject. In speaking of the "principal spontaneous vegetable productions of the rocks and mountains upon the south-east of the Crimea," he mentions the wild Sage as "growing, in some instances to such a size as to be almost considerable enough to rank as a shrub." The black Date (? what is meant), the Pomegranate, the Olive and the Fig tree, are said to "flourish along the coast as in the south of Italy." Vines are alluded to as covering the porticoes of all the doors in Balaclava, and as growing so rapidly that in two years one Vine yielded two bushels of Grapes. The mountains as well as the plains are mentioned as being "thick set with Oak, Wild Pear, Crab and Cornelian Cherry," while the villages are overshadowed "by an exuberant vegetation of the Walnut, the Mulberry, the Fig, the Olive, the Pomegranate, the Peach, the Apricot, the Plum, the Cherry, and the tall black Poplar." The Crimean Water Melon is said not to attain half "the size in which it is seen at Naples, but the flavour is nearly as fine ; while at Cherson, which is more to the north, it grows as large as in Italy." The flora of the south of the Crimea, judging from the plants enumerated in the above-mentioned appendix, as well as from specimens from Compère and others deposited in the Fielding Herbarium, would appear to resemble to a considerable extent that of the Archipelago, especially in the prevalence of species of Cistus, of Salvia, and of other southern genera ; but it is in the sheltered valleys that the luxuriant vegetation described by Dr. Clarke occurs ; elsewhere, and especially to the north, so different is the aspect of vegetation, that "the narrow tract of cultivated land on the southern coast may be compared to an edging of lace on the lower rim of a large apron." *M. T. M., Botanic Gardens, Oxon.—Gard. Chron.. December* 23, 1854.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Zygopetalums.—Specimens of the bulbless kinds of Zygopetalum, such as Z. Lalindei, Z. Klabochorum, Z. gramineum, Z. Roezlii, and others which are often cultivated under various generic names, notably Bollea, Warscewiczella, Pescatorea, Kefersteinia, etc., but are now included in the genus Zygopetalum, are now in active growth, and new roots are being produced from the bases of the partly developed growths. They should be encouraged by carefully removing any sour compost and inserting fresh fibre and Sphagnum-moss in equal parts very carefully among the fleshy roots which, incidentally, are easily damaged and liable to decay if broken or severely bruised. Unless repotting is necessary owing to the plant being overgrown or leggy, it is not advisable to disturb the roots, as they take a considerable time to recover after being repotted, therefore top-dressing or the removal of the compost without disturbing the roots too much is the best treatment. Ample drainage is necessary as these Orchids always require moisture at the roots and should never be allowed to remain dry for any length of time. It is often difficult to find the most suitable position for these subjects. They generally thrive well in a moist and shady corner of the warm house, where the temperature is kept as equable as possible. The plants quickly deteriorate in a hot and dry atmosphere. Thrips and scale insects should be removed by careful sponging with a mild insecticide so soon as detected, as these pests quickly disfigure the tender foliage; spraying during suitable weather should also help to keep them in check.

Robust Species.—The more vigorous species which form pseudo-bulbs, notably Z. crinitum, Z. Perrenoudii, Z. intermedium and the beautiful hybrids Zygocolax Charlesworthii and Z. Wiganianus, thrive in the intermediate house. Many of these are now in full growth and should be given ample supplies of water at the roots each time the compost becomes dry until growth is complete, when a less quantity should suffice to keep the roots fresh and the pseudo-bulbs plump, but prolonged periods of drought should not be allowed. Any necessary repotting may be done when the young growths are in an early stage of development, while those that flower in conjunction with the production of the young growths should be repotted after the flowers have been removed. Use well-drained receptacles and a compost of two parts fibre, one part fibrous loam, one part chopped Sphagnum-moss, and a few dried Oak and Beech leaves well broken up, adding crushed crocks and charcoal to keep it porous. The robust and well-known Zygopetalum Mackayi is now producing flower spikes, and should receive similar cultural treatment as advised for the above, but given a more liberal amount of pot room when repotting. Most of the Zygopetalums require ample supplies of moisture when in active growth, but resent saturation, which quickly induces attacks of the unsightly black spot on the pseudo-bulbs and leaves. Also, moisture should not be allowed to collect in the folded leaves of the young growths or decay may set in. After the pseudo-bulbs are fully developed, the syringe may be used on the plants during favourable weather without any fear of untoward results. Large scale insects often attack the undersides of the leaves, therefore the plants should be examined frequently and the pest removed by sponging so soon as detected. Zygopetalum Gautieri and others with creeping rhizomes are best grown attached to a piece of Tree Fern or to a Teakwood raft, and fixed in a pot, fastening on the compost of fibre and Sphagnum-moss with fine copper wire and extending the raft or block as required.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Spraying Operations.—Preparations should be made in advance for this very important item of orchard management, for it is of the utmost importance that all spraying material should be at hand the moment it is required. This is particularly necessary when one considers the variability of our climate, and the few days during the dormant season when conditions are favourable for spraying. Few things are more annoying than to find that these few opportunities cannot be grasped owing to the lack of material or machinery. A spraying plan should be drawn up and an estimate obtained as to the amount of spraying material required, and the order dispatched to the manufacturer at once. To arrive at such an estimate it may be helpful if I state that a fully furnished bush tree having a spread of ten to twelve feet will take from one-and-a-half to two gallons of diluted spray; those with a spread of twenty feet, or lofty standard trees, may require from three to five gallons of diluted spray to be effective. Every twig and bud should be covered by the spray to secure the best results, for it is here that the eggs of all the moths and of the aphidae are deposited, and not so much on the trunks or main branches. The various forms of tar distillate at five to seven-and-a-half per cent. are most effective in destroying the eggs of most of the aphidae. At this strength it can be applied to the soil of Raspberry stools to destroy the larvae of the Raspberry weevil, and the pupae of the Raspberry beetle, and Black Currants to rid them of aphis as they are the chief "carriers" of big bud mite and of "reversion." Lime-sulphur is, at the present time, the most popular all-round fungicide for winter work. When used at winter-strength, *i.e.*, five per cent., it is most efficacious against scab and mildew on Apples. When employed against Black Currant mite, however, the strength should be a little over eight per cent., or roughly one part in twelve of water. Lime, when used as a cleansing wash, is both economical and efficient, for it cleanses the trees effectually from Lichen and slime, has a corrosive effect on aphis eggs, and will kill the hibernating caterpillars of the codlin moth (Carpocapsa pomenella), which are to be found sheltering under the loose bark of the tree trunks. It is most effective when used as a cover wash, just before the buds burst in spring, against Apple sucker (Psylla mali) which is so destructive to the blossom buds, many of which fail to open properly owing to the ravages of the sucker while in the "louse" stage. This wash should be made from the best Buxton lime shells, 20 lbs. to 28 lbs. to fifteen gallons of water, and put on while hot and through a very coarse nozzle. The lime shells should be placed in a wooden tub, and sprinkled with just enough water to make them fall to powder. If the tub is covered with a sack the operation of slaking will be hastened. Water should then be added to the powder, five gallons at a time to make up to fifteen, stirring briskly the whole time. The wash should then be transferred to the sprayer. Run it through coarse sacking in the process so as to remove any grit which may choke the nozzle, and apply to the trees at once.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Begonias.—Specimens of Begonia Gloire de Lorraine should be removed from the show house so soon as they are past their best and have their growths shortened somewhat with a view to procuring cuttings for next year. Plants that have not been used for grouping in the dwelling-house are to be recommended as most suitable for this purpose. Retain only those plants that have made strong growths at the base. Experience has taught me that success with these Begonias depends largely on the constitution of the plants that are to furnish cuttings. After the plants have had their growths shortened they may be kept slightly drier at the roots, but not to such an extent as to cause flagging, and subjected to a somewhat lower temperature. Any specimens attacked by Begonia mite should be vapourised with sulphur, for it is essential to check this pest if the best results are to be obtained. Late Begonias that are being grown to furnish specimens for decorations during January should receive applications of liquid manure to assist them in the development of their flowers. B. Mrs. Peterson is a very useful late variety. Other winter-flowering Begonias, such as the varieties Optima, Exquisite, Ideal, Mrs. Clibran and others of this type, should be subjected to a slightly lower temperature and kept somewhat drier at the roots when they have passed out of flower, but they should not suffer from entire lack of moisture during the resting period. For the present it is not wise to shorten the growths of these Begonias.

Euphorbia pulcherrima.—As the bracts of the early specimens of Poinsettias reach maturity, fertilisers may be gradually withheld. If watering is carefully attended to and the plants are not subjected to fluctuating temperatures, there is no reason why the bracts should not remain in good condition for several weeks. Later plants should be kept well supplied with weak stimulants until the bracts are well developed. During fogs it may be wise to keep all the ventilators closed.

Tibouchina semidecandra.—This plant, often called Lasiandra macrantha, is a useful subject for flowering at this season of the year, its large, violet blooms being produced over a long season. It is also a suitable plant for covering walls, and when used for this purpose should be planted out in small, prepared borders. If grown in pots for furnishing the conservatory, plants should be secured early in the forthcoming year as cuttings root readily in light, open soil in a close frame with slight bottom-heat. This plant makes long-jointed shoots, therefore to secure a well-furnished plant it is important to stop the growths very frequently during the summer months.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P Ford Manor, Lingfield, Surrey.

The Early Orchard House.—Where the early trees have been placed in position they may now be assisted by mild fermenting material. A night temperature of 45° to 48° should be maintained until they come into flower. When the petals begin to show colour the house should be lightly fumigated on a calm day and well syringed the following morning, to ensure immunity from aphis while the trees are in flower. When this stage is reached a little more fire-heat will be necessary, particularly during the day, as Peaches especially always set best when a free circulation of fresh warm air is maintained to favour the ripening of the pollen. A slight reduction of moisture at this stage is necessary, but unless the weather is wet or foggy, the walls and paths may be damped after gentle heat has been turned on for the day. From this stage onwards the temperature may range at about 60° through the day, and approximately 50° a night, according to the outside atmospheric conditions. The general orchard house should be put in order so soon as cleared of Chrysanthemums. The weather conditions have been too mild for the buds on Peach trees stood in the open and consequently they have become softened, therefore the trees should be housed before severe weather threatens. Pears, Cherries and Plums and the later Peach trees may be left out-of-doors until the end of the year, when they should be housed.

Strawberries.—A few Strawberry plants may now be moved under glass. Fresh air should be admitted freely until the fruits begin to swell, and the house kept moderately warm, although dry. Fire-heat is most injurious, as it necessitates frequent watering and syringing. Once the flowers begin to open the temperature may be raised by a free circulation of hot water through the pipes, and this should also keep the air in motion and prevent condensation of moisture. Large, well-developed flowers may set well enough without the aid of a brush, but at this early season it is well to leave nothing to chance. Careful watering and mild fumigation throughout the early stages should not be neglected. Successional batches of Strawberry plants may be cleansed and brought forward in shallow pits filled with fermenting leaves, while others may be placed in the closed Peach houses and vineries.

THE FLOWER GARDEN.

By R. Findlay, Keeper of the Gardens, R.H.S. Gardens, Wisley, Surrey.

Lilium giganteum.—Those who have been privileged to see this giant Lily from the Himalayas, so huge in size and different in aspect from any other Lily, growing in masses under genial conditions, cannot fail to wish to possess a colony of it. It is essentially a Lily of the woodland in the south, loving the shade of large overhanging trees; under the duller skies in the north it is happy on the fringes of bold shrubberies. It is one of those plants that must be planted in groups before its full value can be realised; it certainly is no good planting a single bulb and expecting to see the full grandeur of this noble Lily. Grouped in the woodland or shrubbery amid proper surroundings, the towering stems, which under favourably moist conditions will reach a height of ten to twelve feet, and form a striking and picturesque feature at flowering time. L. giganteum likes a deep, rich, well-drained soil, and the site ought to be deeply trenched, adding a plentiful supply of well-decayed manure, loam and humus as the work proceeds. Water and liquid manure may be afforded during the growing season if long periods of drought prevail; but the latter should not be required if the preparation of the site was thorough in the first instance. The great mistake usually made by those buying bulbs of this Lily for the first time, is that they invariably ask for flowering bulbs. Such a course can only lead to disappointment, and at times absolute failure. Intending planters are well-advised not to plant flowering bulbs, or the result will be dwarf, stunted plants with a few poor flowers on stems but three or four feet high. It is essential that this Lily be established for a few years before flowering if its true character is to be enjoyed. This can only be accomplished by planting bulbs two or three years old from offsets, and such can be bought at a much cheaper rate than asked for larger bulbs. It may appear to some gardeners to be a waste of time to wait two years or more until the flowers are seen, but it is worth waiting for; and if a few small bulbs are secured and planted each year until those first planted have flowered, no further expense need be incurred in buying new bulbs, as each of the old flowering bulbs should produce from three to five small and medium-sized bulbs. These should be planted so early during the autumn as possible, on freshly prepared sites, to carry on the succession for future years. Stock may be increased readily by seeds which germinate freely, but the bulbs take from six to eight years to reach the flowering stage. When planting, allow the tops of the bulbs to protrude through the soil, and cover them during severe weather with Bracken or leaves, otherwise serious loss may be the result if very low temperatures prevail for any length of time.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Asparagus.—This vegetable lends itself freely to forcing, and crowns from three to four years old give the best results. Several methods may be employed for forcing Asparagus so long as sufficient heat can be maintained to produce quick growth. Where a heated pit can be utilised for the purpose, it is easy to obtain good returns in a few weeks, but where frames have to be used, it takes longer to produce the growths. Place the crowns on plenty of leaf-mould and cover them to a depth of six inches. Keep the roots uniformly moist. Another method is to place frames over portions of the Asparagus bed, banking plenty of horse manure well round the frames as fermenting material for the production of warmth.

Mushrooms.—Beds spawned some seven or eight weeks ago should now be commencing to crop, and some of the rougher covering material should be removed to free the buttons. Succession beds should now be spawned and covered with a layer of fine mould from good turf. Maintain a temperature of from 60° to 65°, but guard against excessive heat. Spray the walls and paths of the Mushroom house frequently with tepid water.

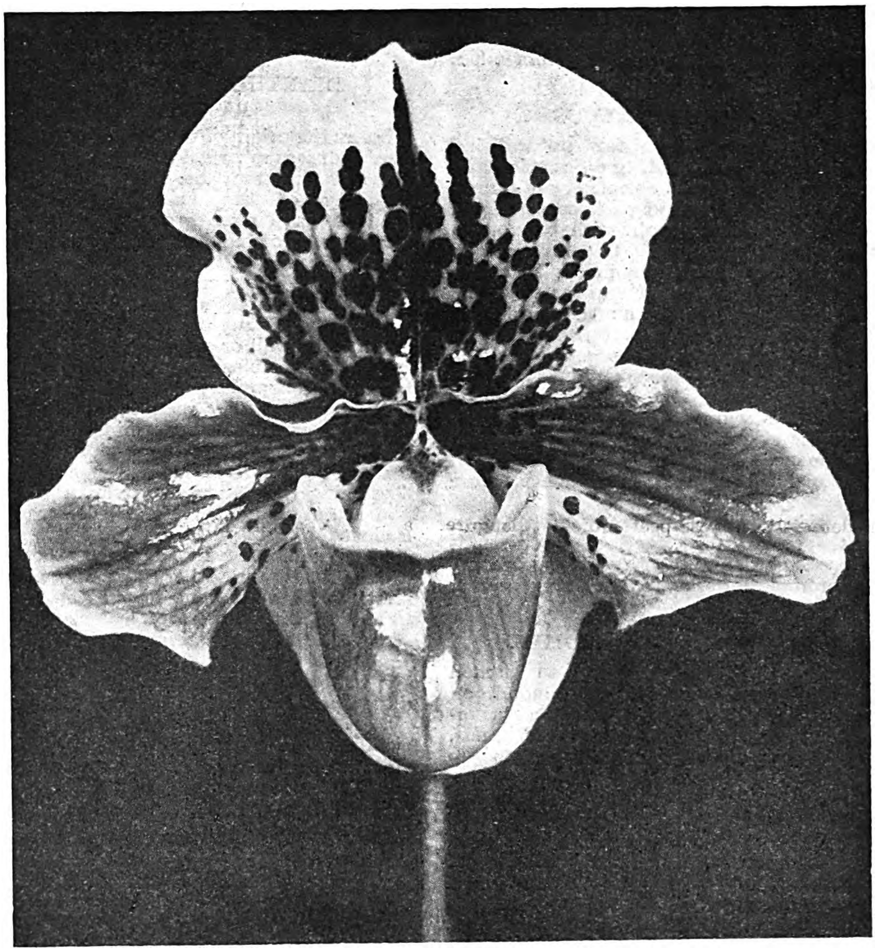

FIG. 222.—CYPRIPEDIUM GERDA.

R.H.S. Award of Merit, December 10. Flowers white and green, spotted with purple.

Shown by Messrs. H. G. Alexander, Ltd.

(see p. 473.)

Cauliflowers.—The Cauliflower plants in frames should receive an abundance of air on all favourable occasions, and any dead or yellow leaves should be removed. Stir the soil between the plants frequently, and grow the plants so hardily as possible as, if allowed to become soft, they are likely to be crippled in very severe weather.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Vines.—Any Grapes still hanging should now be cut and bottled, so that pruning may be finished before the end of the year. It is most important that this should be done while there is still a little sap in the rods to seal the cuts, or bleeding will take place when the sap begins to rise in the spring. The bunches may be stored in any cool, dry, airy room, but it is advisable to inspect the bunches regularly so that decaying berries may be removed so soon as they appear. By this method of storing, the Grapes may be kept in good condition for several months provided the room is ventilated sufficiently to dispel any moisture and a temperature of about 45° is maintained.

Chrysanthemums.—Most of the late-flowering varieties may be propagated so soon as sufficient cuttings can be secured, and varieties not at present producing cutting growths should be cut back, have all the soil shaken from their roots, and the stools placed in boxes, in a compost of light sandy soil, leaf-mould and sand in equal parts passed through a half-inch mesh sieve. If placed in a temperate house and sprinkled occasionally with tepid water, they should soon break into growth. Much has been written lately about rooting Chrysanthemum cuttings in pure sand. No one will dispute the fact that this can be done, but for securing a general stock of garden plants, a light mixture of loam, leaf-mould and sand, with a good surfacing of pure sand, is the best medium, as then there is no need to pot the cuttings directly they are rooted, the young plant having a supply of food in the soil. If rooted in pure sand, they must be transferred to soil at once, which in many cases is not always practicable. The soil, whether in pots or boxes, should be made quite firm so that the cuttings can be inserted just so deeply as to hold them erect. If the soil is damp, sufficient water only should be given to settle them in the boxes and these should then be placed in a temperate frame where they may be kept close for a few weeks, giving a little air for a short time each day and removing moisture from the glass at the same time.

BULB GARDEN.

MUSCARI POLYANTHUM.

I am glad to observe that Mr. Copley (page 424) has contributed a note of appreciation of Muscari polyanthum. I look upon it as one of the best of the Muscaris, although the shade of blue is, perhaps, not quite so bright as that of the popular M. Heavenly Blue. The spikes are larger and the flowers superior in size to those of M. botryoides.

I have a good clump of it in my rock garden and appreciate it highly.

I may be permitted to write a further word in praise of the white variety of M. polyanthum. This is equal in size and in every respect to the blue one, but is a good white, slightly tinted with palest blue at one stage of its flowering. M. polyanthum var. album is the finest of the white forms of the Grape Hyacinth, and a small group I had here last spring was much admired. Both the blue and the white forms are in commerce and can confidently be recommended. *S. Arnott.*

CROCUS OCHROLEUCUS.

This is a good species for naturalising upon the rock garden. It is free-flowering and increases rapidly by small cormlets, an abundance of these being formed each season upon the parent corm. Although perhaps not so showy as many other species, C. ochroleucus is especially welcome as it commences to flower when the greater number of autumn-flowering forms are passing out of bloom; the flowers are not quite white, ivory being a better description, and the throat is stained with orange to a variable degree, almost negligible in some, quite a strong feature in others; very faint grey lines are perceptible on the segments, while the anthers are white, the stigmata yellow. Crocus ochroleucus commences to flower without leaves but, usually, the short leaves are in evidence before the second blossom appears.

This Syrian species I have found to be a most satisfactory plant, and a group of it upon the rock garden is a very satisfying feature when autumnal flowers are becoming scarce. *Ralph E. Arnold.*

MERENDERA BULBOCODIUM.

Merendera Bulbocodium was so named by the famous French botanist Ramond, on account of its resemblance to Colchicum autumnale, which the Spaniards call *Quita Meriendas*, or Takes-away-the-taste, in allusion to its poisonous qualities.

M. Bulbocodium is a small, bulbous plant of the central Pyrenees, and a rare denizen of the French Department Bouches du Rhône. One gathers from books that its only other known habitats are Abyssinia and Afghanistan.

There are three other Merenderas, two of which, M. caucasica and M. Eichleri, are natives of the Caucasus; the other—M. persica—is found in Persia.

The pink or pale mauve, Crocus-like flowers of M. Bulbocodium appear in August and September; the grass-like leaves and the fruits appear after the flowers wither, the latter maturing in the following spring, when the ripened ovary is on a stalk.

The flat part of each of the perianth segments is shortened abruptly into a long, narrow claw which has a small tooth on each side of the contraction point. These teeth are absent on the perianth segments of Colchicums. The three styles of M. Bulbocodium are all free.

Its bulb is covered with a black skin. Quantities of these bulbs grow in the meadows which fringe the mountain streams, or gâves, from Gavarine and Cauterets to Argelès-Gazost. A local botanist told me that in his opinion their original habitat was in the high altitudes, but that, in the course of ages, the mountain torrents when in spate have brought down the Merendera bulbs to lower regions, leaving them in the meadows when their waters have subsided.

If Merenderas would take kindly to our rock gardens they would be a most attractive addition to them at a time when blooms are scarce, more especially if they had their compatriot Paronychia capitata as a carpet.

I brought back hundreds of these bulbs from the meadows in the valley of Lavedan in the autumn of 1927, but I regret to state that not one of those which I kept for myself has survived.

Although I have read that Colchicums and Merenderas require the same soil conditions, I have not found this to be the case in the Pyrenees, where both grow in multitudes. C. autumnale grows there in damp, more or less water-logged, peaty soil away from the streams in the valleys, and on the high mountain plateaux; whereas M. bulbocodium is found, as stated, in the meadows through which the gâves flow, and these fields have a very stony soil, made up of pebbles similar to those which form beaches on the sides of the streams. The soil of the meadows is a rich alluvial one, with perfect drainage owing to the presence of so many stones. *Victoria Slade.*

ALPINE GARDEN.

DIANTHUS CAESIUS VAR. ARVERNENSIS.

What the origin of this rock Pink is I do not know, but it is regarded as a form of D. caesius. However that may be, it is one of the most satisfying of the mat-forming Dianthuses which I have ever grown. It is extremely adaptable, growing in the sun-baked, vertical crevice of a dry wall or well-prepared, flat ledge, with equally happy results. Its very dense and slender leafage of a cool blue-grey shade is always neat and firm at any season, whether it is merely padding the wall or spilling over the edge of its pocket-bed in a closely-knit fold of wind-defying texture and exemplary tidiness. As for flowering, there is not another rock Pink in the garden that can equal this charming plant in the number of its bright, rose-pink flowers and few which can rival it in the extent of its blossoming period. Then D. c. var. arvernensis, as if to round off an already excellent reputation, produces a sufficiency of self-sown seedlings which are almost invariably true to the parent in colour, habit and other particulars. I write "almost" because one may occasionally find a seedling with flowers of a darker or lighter shade, and a pure albino is not uncommon. But the plant never, in my experience, shows any inclination to assume the characteristics of the Cheddar Pink, D. caesius.

D. c. var. arvernensis cannot be a very good friend to the nurseryman, for it is one of the few which never seems to get into one's replacement list. At any rate, I have had it flourishing for nearly twenty years, and it is as hearty and delightful to-day as ever it was. *J.*

SEDUM AMPLEXICAULE AND S. BREVIFOLIUM.

It is during autumn and winter that those delightful little Sedums, S. amplexicaule and S. brevifolium, are most attractive, for it is then that their foliage, which is their trump card, is at its best. The former, as is well-known, goes into its summer sleep so soon as its flowering is over in the later spring, and the dried "stem-clasping" leaves, which then seem as much like hay-seed as anything, do not reappear until called to renewed activity by the autumn rains. Thence onwards, throughout the winter, this Sedum makes attractive little mats of its procumbent stems and wee tufts of linear leaves, which are a cold, bluish-grey, and seldom more than an inch or two in height. Although a native of southern Europe and North Africa, S. amplexicaule is quite hardy. It flowers, as I have stated, before the summer is fully here, sending up an erect, slender stem some four inches high, which terminates in a forked inflorescence bearing comparatively large, golden-yellow blossoms.

S. amplexicaule is a plant for a dry, sunny spot with a gritty, free soil, and the other species mentioned, which makes a good companion plant, can do with even more arid and sun-baked conditions. Indeed, S. brevifolium enjoys nothing better than sharing an almost soil-less rock crevice with the Lichens which usually haunt such places, and once established in such a position it will soon colonise other suitable adjacent chinks by "sowing" them with its small, round leaves which it rolls about in plenty. These leaves are particularly noticeable, as I have suggested, between autumn and spring. During that period their ruddy tint glows to crimson and purple, and their white meal develops a blue-whiteness of extraordinary luminosity. The erect stems which bear these tiny leaves, closely packed in four vertical rows, are seldom much above one inch in height and they produce at their tips in July a few rather small, crystal-white flowers.

S. brevifolium, as above briefly described, has been grown by a good many as S. b. var. Pottsii, and it was that name which my original plant bore when it came here many years ago. But Mr. Potts, whoever he may have been, has been deposed by Dr. Lloyd Praeger and the late Sir Isaac Bayley Balfour, who contend that "var. Pottsii" is indistinguishable from the type. Still the name clings to this little Sedum, but to list it as "S. farinosum" is a good deal wider of the mark. As a matter of fact, S. brevifolium is a species which is signally distinct in an often confusing race. It is one of the gems of its tribe, and quite hardy and amiable in a really dry place. *N. Wales.*

DRACOCEPHALUM GRANDIFLORUM.

One may search a great many catalogues nowadays without finding the dwarf Dracocephalum grandiflorum offered, although in past years it was occasionally to be met with. It had then an unenviable reputation for being difficult to retain in the garden. Slugs are very fond of the plant, and if not checked in time will soon destroy even a strong specimen.

A small coterie of us used to grow this plant, or, rather, *tried* to grow it under the ordinary conditions of the rock garden, but had usually to admit failure. This, naturally, induced us to study the conditions under which others were successful, but even then, when the plant was more plentiful than now, this was not easily done owing to the scarcity of successes. Somewhere about the year 1892, when visiting a small nursery in the precincts of Glasgow, kept by a good grower, the late Mr. Munro, previously of the firm of Messrs. Ferguson and Munro, Edinburgh, I was gratified to see a few very fine plants of it in the open ground. On examination, they were seen to be growing in almost pure ashes, this medium not only helping to deter the slugs, but also affording the thorough drainage required by this Dragon's Head. This was in accordance with Farrer's recipe for the culture of the true D. grandiflorum, of a "very gritty morainish bed, or in the moraine itself, with water flowing below, perhaps, in summer, but as perfect drought as possible in winter." This refers to Dracocephalum grandiflorum of Linnaeus, and the fact that three different plants have been named by botanists D. grandiflorum does not render a search for the true plant any easier.

Thus, Bentham's D. grandiflorum is D. altaiense, of Laxmann and of Willdenow, and D. altaicum, Schangin. But this is an erect plant, six or nine inches high, while the true D. grandiflorum, the subject of this note, is less erect, falling slightly over at first and then rising. The other claimant to the title of D. grandiflorum is D. imberbe. Farrer details the distinctions between these three plants at some length, but it may be stated that the true D. grandiflorum, of Linnaeus, has "the leaves oval-oblong, scalloped or saw-edged, not heart-lobed, but wedge-shaped to the base, and grey with spreading hairs; the flowers are narrower than in the others, less divided, and their whorls not crowded into a head or spike at the top, but perfectly distinct, and with oblong bracts, almost uncut at the edge and ending in a protracted point as fine as a tip of hair." This summary of the points of difference by Farrer's may be of assistance in identifying the true plant. The large flowers are blue and are borne for a long time in succession in summer and early autumn.

While the three plants already discussed are all to be coveted it is well that there should be no doubt regarding their names. I may state that I have not seen the true D. grandiflorum for a considerable time. *S. A.*

TREES AND SHRUBS.

COTONEASTER HUMIFUSA.

Cotoneaster humifusa, Duthie, or Cotoneaster Dammeri var. radicans, of Schneider, is a particularly useful shrub for rockwork, since it hugs the ground or creeps over the stones, following the outlines as if loath to part with them.

This is one of the evergreen trailing species, with prostrate stems which are mealy, with fine hairs while young, and which never become very stout, and bear smooth, oval leaves about an inch long and one-third as wide, curling inwards towards the centre. The flowers are usually borne singly on minute stems. They may be so much as half-an-inch across, although often less than this, and are followed by fruits which are usually described as coral-red in colour. So much for a rather bare account of the plant, which, nevertheless, approximates to the botanical descriptions which have been published.

This species grows well in ordinary garden loam. It does not object to a sunny position, and should be placed so that it can follow the outlines of several medium-sized rocks. Although the stems are comparatively slender, growth is very rapid. Seedlings which have been pinched back form a neat habit, many stems radiating from the centre. This Cotoneaster, although an evergreen, exhibits quite effective autumnal colouring.

It would be interesting to know whether C. humifusa is at all variable from seeds. For example, a plant received under this name from a nursery of unquestionable accuracy of nomenclature, had berries which were deep scarlet in colour, with no suspicion of the coral tone usually attributed to C. humifusa. Incidentally, the specimen made growths which soon became quite stout and comparatively rigid towards their bases. It was a strong, woody plant when received, but well furnished with leaves, and these leaves were beautifully tinted each autumn.

C. humifusa is stated to be a native of central China, and was introduced by Wilson in 1900. The writer has not tested its liking for lime, but Farrer recorded that he found the plant growing "in almost pure limestone silt." He refers to it as C. Dammeri var. radicans, and discovered it in at least one locality on the Chino-Tibetan border, which by the widest stretch of the imagination cannot be called central China. When one also reads of the "brilliant scarlet fruits," one is inclined to ask if this is C. humifusa or not, since, in certain respects, the plant does not appear to coincide with authoritive descriptions of C. humifusa, while in other directions there is agreement. There appears to be a discrepancy somewhere. It may be that C. humifusa is variable, or possibly there are two plants under the same specific name. The writer cannot solve this problem, since he has not all the data at his finger-tips, but, rather than remain in a "fool's paradise," he would admit his difficulties and ask for the facts. *R. C.*

LEUCOTHOË CATESBAEI.

In a Natural Order which has enriched our gardens with numerous treasures such as the large family of Ericaceae, it is not wise to single out plants for special praise, yet Leucothoë Catesbaei is such a splendid all-the-year-round plant that a few words in its favour may be forgiven.

For not only are its Pieris-like flowers very charming, borne as they are on graceful, wand-like growths, but its evergreen foliage strikes an effective note in the open woodland garden the whole year through, and especially at this season of the year when the leaves have taken on their purplish winter tints, somewhat sombre and in keeping with the general tone of winter, but colourful enough to prove an effective relief from the prevailing dull and rather lifeless greens of the Rhododendrons, etc.

At one time included under Andromeda, this species has slender, wand-like, zig-zagged growths, reddish in the young state, which form a bushy clump three or four feet high and as much or more across, and these are furnished with a double row of glossy, leathery leaves, lanceolate in shape and tapering to a long, slender point, with spine-toothed margins; dark glossy green on the upper surface and paler beneath.

The slender, pitcher-shaped, white flowers are produced during May in racemes arising from the axils of the leaves on the upper portions of the stem, but as they droop beneath the foliage their full beauty is not always appreciated; this, however, may be rectified by the aid of forked sticks to lift the growths slightly while in bloom.

There is a form, L. C. var. Rollisonii, which is stated to have smaller and narrower leaves.

L. Catesbaei delights in moist, peaty soil, or it may be grown with success in sandy loam well enriched with leaf-mould. It is quite hardy, flourishes in semi-shade in association with other so-called "American shrubs," and may be increased by division. It was introduced to cultivation in this country so long ago as 1793, and is found naturally in the mountainous regions of the south-eastern United States.

FIG. 223.—HILL JUNGLE, 3,000 ft. alt.; HIBISCUS IN FLOWER.
(see p. 484).

There are several other attractive species in this genus, most important among them being the Californian L. Davisiae, considered by some to be the most attractive member of the family. So far as its flowers are concerned it undoubtedly is, but whether it is such a good all-round plant as L. Catesbaei is open to question.

Of sturdy and compact habit, it forms a neat bush of erect growths furnished with ovate-oblong leaves up to two-and-a-half inches long, and dark, lustrous green, and produces during the latter part of June erect racemes of nodding, white, pitcher-shaped flowers in terminal clusters, and from the axils of the leaves near the ends of the growths. Although not hardy in all districts, it is well worth a sheltered place in the open woodland, for it is a handsome flowering evergreen shrub, its blooms being displayed much more effectively than in L. Catesbaei. It was first discovered by William Lobb, in the Sierra Nevadas, while collecting for the late firm of Messrs. James Veitch and Sons, in 1853, when it was named L. Lobbii. Later, however, it was found by Miss N. J. Davis, whose name it now bears.

L. axillaris differs from L. Catesbaei in having shorter and broader leaves, but otherwise closely resembles that species; it is, however, not so hardy and is stated to be rare in cultivation.

Two deciduous species of Leucothoë, both from the United States, are sometimes included in collections of peat-loving plants, namely, L. racemosa and L. recurva. The former is the most desirable species, and it is an attractive, free-flowering shrub. *M. W.*

HARDY FLOWER BORDER.

LINARIA DALMATICA.

The Dalmatian Toadflax, Linaria dalmatica, is one of the good border plants which are not generally met with in herbaceous borders. This should not be, as it is neither a new nor a rare plant, and is not difficult to obtain from many hardy plant nurseries. It has had a long career in our gardens, having been introduced so long ago as 1731, when it was brought from the Levant.

L. dalmatica is an erect-growing plant with good spikes of flowers which have the characteristic spurs of the genus and are bright yellow in colour. It grows from eighteen to thirty inches in height. The foliage is quite neat and the whole appearance of the plant is distinct.

There is a superior form generally called L. d. var. macedonica, but frequently listed simply as O. macedonica. It grows a little taller, and has rather larger flowers, which are of a finer yellow. But either form is excellent.

L. dalmatica and its variety are perfectly hardy in any good garden soil. Plants may be raised from seeds or secured by taking off the runners which make their appearance about the plant, but which are not usually so rambling as to be troublesome. *S. Arnott.*

CENTAUREA PULCHERRIMA.

I fear Centaurea (or Aethiopappus) pulcherrima (see p. 4.2) suffers on account of its lengthy name, as I find that this is an obstacle to some, especially ladies, who like to be able to tell of the plants in their gardens and are reluctant to tackle one like this. But this plant has merits which constitute a powerful claim for inclusion among one's flowers. I note *North Wales* considers that it might find a place on the rock garden, and where the conditions he suggests can be afforded it should most certainly be given a trial. But it is really a plant for the border, where it may be introduced with advantage.

C. pulcherrima has rather long leaves, silvery beneath, and pinkish flowers of good size, resembling those of some of the better known Centaureas or Cornflowers. This plant thrives in any ordinary garden loam, and is hardy with me. It may be raised from seeds or propagated by division. It is a native of the Caucasus. *Dumfriesshire.*

PYRETHRUMS.

The gardener is often called upon to provide flowers for border displays and table decoration, and in this connection the claims of Pyrethrums should not be overlooked. They fill the dual rôle very well. I have never found that there is any real difficulty in growing them, but undoubtedly the best results are secured when they are grown in a fairly rich, freely-drained soil, and a light situation. If a mulch of manure is spread over the roots in winter, it will protect them during very severe weather, and in springtime will supply useful food.

Although good results can be obtained from seeds, I am sure it is safer and more satisfactory in every way to make a selection of varieties which are available in quantity from nurseries. The present is a suitable time to plant, and the following varieties, in my opinion, rank among the most satisfactory:—Double: Mont Blanc, pure white; Queen Mary, rose, with pink centre; Lord Rosebery, scarlet; and J. N. Twerdy, crimson, tipped with yellow. Single: Queen of Whites, Merry Hampton, crimson; Hamlet, pink; Princess Victoria, carmine; Elsie Gertrude, blush-white; and Fairfax, flesh. *Geo. H. Copley.*

NOTES FROM GLASNEVIN.

November has proved a trying month for plants and gardeners. Nearly four-and-a-half inches of rain made ground work difficult and spasmodic, yet where old shrubs have had to be moved the drought of the past summer was still much in evidence. In spite of the heavy rain there were snaps of fairly severe frost, and not a few plants were caught unprepared. This is not surprising, however, in view of the great number of new species being constantly introduced, and which are as yet comparatively untried and unacclimatised.

So early in the winter some of the newer Rhododendrons have suffered, notably some provisionally labelled "grande series," and that not only in the open, but also in cold frames. A curious condition is shown in R. Griersonianum, on which the shoots terminating in flower buds are as yet untouched, whereas shoots without flower buds are already frosted and wilting; presumably the latter had continued to grow later and were less well ripened. Several visitors learned in Rhododendron matters have assured me R. crassum is hardy, but young plants here are even now ominously brown towards the ends of the shoots. It is unsafe, however, to draw hasty conclusions, as a species may continue to grow late in a mild district and suffer from an early frost, and in a cold district finish its growth earlier and be sufficiently hardened to resist a low temperature. It will take years to decide which of the newer species are definitely unsuitable for the open in any particular garden. One other condition I may mention in connection with Rhododendrons. A young plant of R. neriiflorum was well set with plump flower buds, and while examining the plant, I happened to touch one or two of the buds, and to my dismay they promptly fell off; although green, and to all appearances sound, the centres were brown, rotten and wet. I do not think frost was the cause, but more likely the heavy rains early in October caused a rush of sap to the buds just as they were going to rest for the winter.

A fine bush of R. Fargesii well-furnished with flower buds, some of which are already showing colour, would be a wonderful sight if frost remained absent, but we have the same promise annually, the fulfilment being, perhaps, half-a-dozen flowers sheltered by the upper branches.

Apart from Rhododendrons, there are, fortunately, many other shrubs of great interest and which invite examination as to present and future promise. Viburnum fragrans has never done much at Glasnevin, except make plenty of growth. Our original plant is now a good-sized shrub and is showing numerous flower buds, while other more recently acquired, some of them from Mr. Trotter, of Leith Vale, are equally promising and even in flower. This looks like being a good garden plant and would, I think, be useful for winter flowering in the greenhouse if lifted from nursery quarters in autumn and potted up. Viburnum nervosum (grandiflorum) was never more promising, and given a continuance of mild weather should soon show a pink tinge in the buds. Frost does not kill the buds; they simply wait on the thaw and go on again.

Many writers have commented on the wonderful colour of foliage and fruits during the past autumn. Glasnevin was no exception, but winter effect is reduced to the colour of shoots and stems, such as Dogwoods, Willows, Brambles, etc., and a few berry-bearing shrubs untouched by birds. Among the former the common Cornus alba is scarcely surpassed, but a form known here as the "Westonbirt variety" is of a brighter crimson, although not so free in growth. The various yellow- and orange-barked Willows and the white-stemmed Brambles all help to make the garden interesting.

Acer pennsylvanicum, the Snake-barked Maple, is itself an ornamental species for winter effect, while its variety erythrocladum, with young shoots of almost coral-pink, would be striking were it as free in growth, but a specimen here twenty years old is only a few feet high. Far better is the variety of Acer macrophyllum called aureum, with shoots of the current year coppery-yellow.

The most striking berried shrubs at present are Pyracantha Gibbsii var. yunnanensis, a mass of crimson haws, and P. angustifolia, turning yellow, to become orange after Christmas. Cotoneaster horizontalis is still unsurpassed for its free-fruiting qualities and here and there in the grounds, on the rock garden, and in odd corners unnoticed, perhaps, in summer, the glowing crimson fruits now immediately catch the eye. An unusual effect is produced by Vaccinium glauco-album carrying clusters of glaucous-blue berries, the effect enhanced by a carpet of the fallen fruits on the ground beneath.

The wonderful effect in contour and colour of the various Conifers is too big a subject to attempt here, but looking down the Pine hill from the rock garden a thriving young specimen of Pinus Ayacahuite, bearing a good crop of cones, attracts attention; this species, with much the aspect of P. excelsa, makes a handsome tree and here at least is as hardy as the Bhotan Pine. *J. W. Besant.*

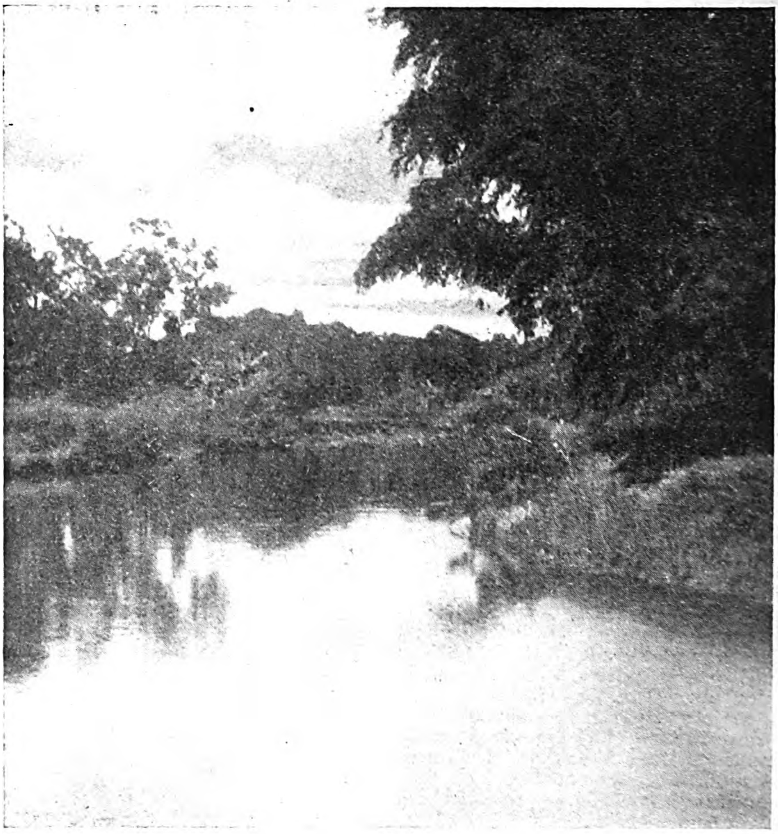

FIG. 224.—A TYPICAL ASSAM RIVER SCENE.

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XXXIX.—The Foot-hills.

At this season, that is, in the cold weather, which in northern India is literally the winter, there are very few trees in flower. The Holok (Terminalia myriocarpa) is over, and is even more conspicuously beautiful glowing with the flame of its red fruits than it is in bloom. Bauhinia purpurea var. alba is nearly over. In the forest, a few Myrtaceae (chiefly species of Eugenia) are coming into flower, but these are small shrubs, not to be compared with the big trees. Only Castanopsis indica is putting out its long, fluffy, cream-coloured spikes.

But if there are no trees in flower, so far north as Upper Assam in the winter, neither are there any leafless trees — or very few. The forest is evergreen. It is the dry weather, so far as the rain is concerned, but the atmosphere is always moist, and on the plain it is saturated. This keeps everything green until the hot weather in March and April, when some trees shed their leaves for a short time. The heavy mists which lie over the river on the plain make it feel much colder between sunset and sunrise than the actual temperature would suggest; and I felt warmer at night in the foot-hills, above the one-thousand-feet contour, than I did in Sadiya. The only two leafless trees I saw at this season in the Abor Hills were Lagerstroemia parviflora, easily recognised by its smooth, bleached, columnar trunk, very tall and straight, topped by a small crown of twiggy branches; and Sterculia villosa, just as easily recognised by the few dead leaves which still cling to it. The former is not very common, and always scattered; the latter is common, and sometimes gregarious on the savannahs with Albizzia species.

Although the forest trees do not really begin to flower until after Christmas—and even then it may be remarked they make precious little display in this monstrous ocean of jungle; the herbaceous flora is already going strong. This is most noticeable in secondary growth, where there is much more light than in the jungle; that is, in the neighbourhood of villages and cultivation. Here, out in the open, many of the herbs, particularly species of Labiatae, become small bushes with stout, woody bases. But there are flowers in the jungle, too, the half-shrubby undergrowth of the cool darkness; on the hot, open savannah or parkland of high grass and scattered trees; on the still hotter, stonier chapri, but recently reclaimed from the river; and in the bare stony or sandy river beds themselves. Such flowers as there were belonged almost entirely to the Labiatae, Acanthaceae and Compositae; I shall come to them later.

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issue of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 2, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 16, 28; October 12, 26; November 9, 23, 30; and December 7, 14, 1929.

It was noticeable that there were few Orchids, and still fewer in flower. Being above the mist bath on the plain, Orchids do not thrive in the open savannahs at the base of the hills, and the jungle is generally far too dark for them. A few hundred feet lower down, or a few thousand feet higher up, in the cooler and more open hill forest, we might have found plenty; but we were just in that intermediate belt which is not rich in Orchids. I noticed a few in the jungle, but usually on dead trees, where the light could reach them; and I dare say there were some high up on the biggest living trees. But the most likely place to find them was on big trees scattered in the dry water courses, or along the river bank. As a matter of fact, there were probably as many on the small Jack-fruit trees (Artocarpus integrifolia), which grew in groves around the villages, as anywhere. I collected a Vanda here, said by the Abors to have beautiful flowers, although what the colour was, I could not make out. One curious species, much like Dendrobium triste, was in bloom; the flowers dark chocolate, with a bright yellow lip, borne in a dense spike and smelling strongly of rotten meat!

It is always stated in botanical books that flowers with a foetid smell are attractive to carrion flies, and, by implication, that commoner insects, such as bees and butterflies, which visit sweetly-scented or gaily-coloured flowers, keep aloof. This may be true, so far as it goes, but I believe it is only a half-truth. Certainly I have seen carrion flies, or, at any rate, flies, visiting the nasty-smelling flowers of an Aristolochia; and I confess I cannot recollect ever having seen bees or butterflies visiting any dirty-looking flowers—although it must be remembered that these are not especially common. But the theory that pretty insects only visit pretty flowers, and that only repulsive-looking flies visit stinking flowers is surely based more on a simple association of ideas than on actual observation. No insects are more dirty feeders than butterflies. And why? There is one substance which every creature in the jungle from a butterfly to a buffalo needs, and that is—common salt; although it is anything but 'common' in the jungle!

Anyone who has lived in the tropics must be familiar with the sight of a cloud of butterflies all aflutter on some sand bank by a stream, where cattle have been down to drink. Watching them carefully, one sees that the proboscis has prodded deeply into the wet sand, where it remains, while every ten or fifteen seconds a jet of water is squirted from the anal orifice; and this may go on for many minutes. These insects are taking in salt. Butterflies, however, will seek salt anywhere, such is their need, and it is quite usual to see a host of glittering insects hustling each other on the droppings of some carnivore, whether in the dim jungle, or out in the blazing sunshine; while bees are a perfect pest in the forest, being attracted by human perspiration. In other words, the more aristocratic insects, although they may be definitely attracted by bright colours and pleasant scents, which are almost invariably associated with honey (food), are not necessarily repelled by bad stinks and dirty stains. If butterflies do not trouble to visit odious flowers, it is only because these fail to provide anything worth while—salt, say, or even honey; and what they have on offer is easily accessible to carrion flies, or any other flies with short tongues. Probably the foul smell does suggest salt to these insects—not carrion; and if they do not obtain any salt but do obtain food, at least they are no worse off. The common house fly is the vilest scavenger in Asia, and is generally to be found hanging around carrion flowers; so also is the bluebottle.

To return to the flowers of the forest. Acanthaceae were, perhaps, the most prominent, both for number of species, and in bulk. A species of Strobilanthes was very abundant, forming a regular bush, so much as eight feet high, in the jungle; two other species of Strobilanthes were much rarer. There were also species of Asystasia, Eranthemum, and a Phlogacanthus with purplish-pink flowers. Altogether I noted ten species along the foot of the hills between the Dibang river and the Dihang; had I been able to climb higher I might have found more. Labiatae came next, with eight species—seven in flower. A yellow-flowered Lamium was abundant, and a purple-flowered Teucrium, the latter in deep shade in the jungle. There were a few Compositae, mostly familiar by sight; the only interesting plant was a species of Senecio (?) with tall, stiff, wiry stems, narrow leaves, and umbels of glittering yellow flowers; an extraordinarily lean and sapless plant of the hot, sandy chapri.

Two other shrubs in flower call for notice—the white Buddleia asiatica, a small bush of the open secondary growth (recent); and in the jungle, the long, knotted, red ropes of Thunbergia coccinea, a very common climber in these parts. Other climbers in flower belonged mostly to the Convolvulus family, of which there were two or three species, by far the commonest being Porana paniculata, which capped whole trees with a dome of white blossom.

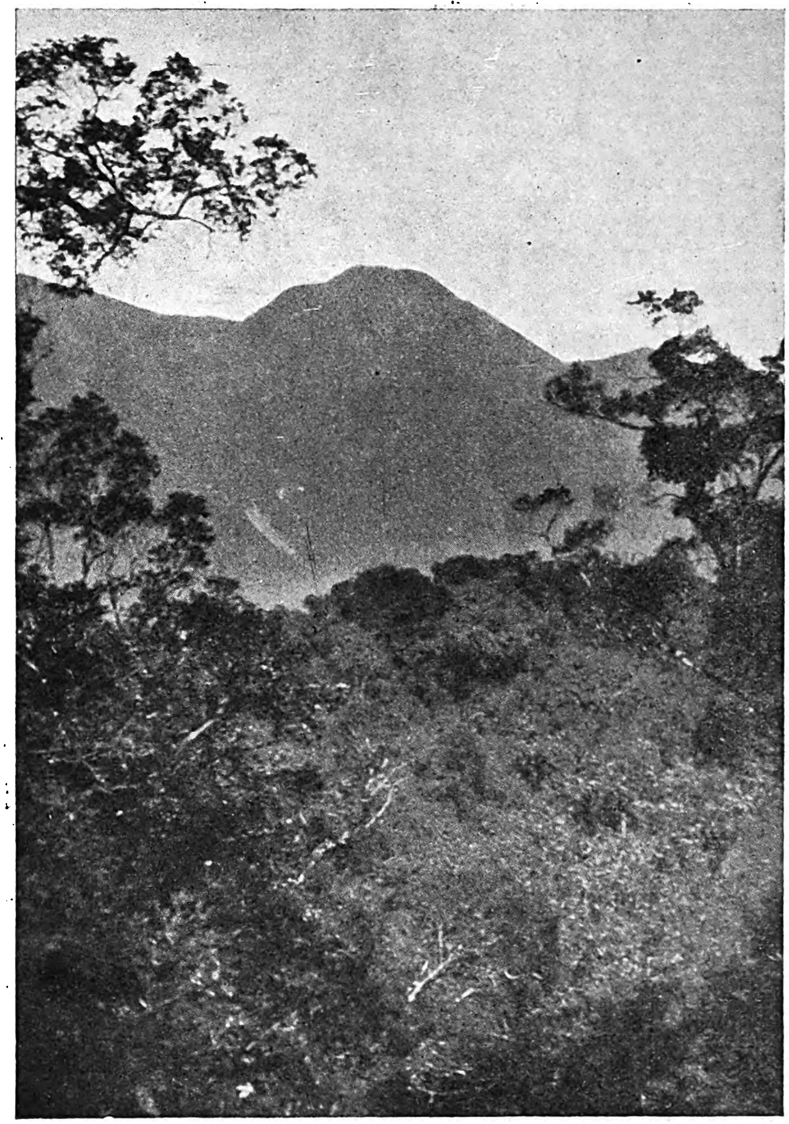

FIG. 225.—HILL JUNGLE, 4,000 ft. alt.; DIBANG GORGE.

It was rather tantalising to march along the slanting shelf just at the foot of the hills, and to look up at them rising tier beyond tier, from 3,000, feet in the foreground to 7,000 and 9,000 feet in the middle-distance, and so through the gaps breached by the rivers, to the snow-glazed high alps in the background; and to feel that above the 7,000-foot contour, so absurdly near, there were probably many new species of plants awaiting discovery. But lack of paths, lack of coolies, lack of any wanderlust and, indeed, lack of energy on my part after our immense exertions in the Mishmi Hills, made it impossible to go there.

I hardly expected to find any new species of flowering plants down below, although in such a country you never can tell. I might, however, find species not previously recorded from Assam. Apart from the fact that practically no trees were in flower, I did not trouble myself much about them; probably they would all have been recorded by forest officers, although almost the only tree that they take any interest in is Holok, so utilitarian has the department become—that, and Cedrela and one or two others. But forest officers are rarely field botanists, and the exceptions, such as the D.F.O. at Sadiya, confine themselves to knowing the woody plants; so that by paying attention to the herbaceous flora, I might be fulfilling a long-felt want, as they say. Someone in Shillong—the hill capital of Assam—was supposed to be writing a flora of the province, surely a monumental work! Even a small collection might add some useful knowledge there, and, of course, our collection from the Mishmi Hills would add many species to any existing lists. Indeed, if 'Assam' includes all the unadministered territory, it must contain by far the richest flora of any province in the Indian Empire, except Burma; and I would hazard a guess that there are hundreds of unknown species lurking in the Abor and Mishmi Hills, although many years may pass before they are discovered.

The journey from Nizamghat on the Dibang to Pasighat on the Dihang was pleasant enough after the toilsome days spent in the Delei valley; although with only ten coolies, I was not travelling in any luxury. *F. Kingdon Ward.*

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LILIES IN 1929.

THE year just drawing to a close has been a memorable one for Lilies, and to find anything like a parallel to it one must go back to 1921. In that year, however, the weather of the first quarter was what we regard as normal, whereas in the early months of the present year, the earth was frostbound and with an occasional interval remained so until the beginning of March.

In the home counties there was no sign of a Lily above ground until the first week of April, and that is a good deal later than in any year of the present century. Whether this was due to the frost or the drought which prevailed then, or to a combination of the two, must remain a matter of opinion, and the point is only of interest because in less extraordinary years a late start is usually made up before the June-flowering group has finished its display soon after midsummer.

This year, Lilies seemed to be permanently influenced by their late start, and in spite of the fine weather which prevailed from July onwards, they were about a fortnight later to come into flower all through the season than the average date of the past twenty years. In spite of the hot sun, too, seed capsules were uncommonly slow to mature, and those of L. pomponium, for instance, were not ripe until the third week of September. L. monadelphum, also, did not ripen its seeds until long after the average date.

Apart from the tardy beginning, Lilies had to bear the brunt of as cold a late spring as we can remember, and it is many years since the north-east wind held the country in its grip so persistently or for so long. Time after time, the wind would veer to the south-west for a day, or perhaps two, only to be beaten back by a high pressure system from the Continent. This tussle between the Atlantic and the Continent is typical of our vernal climate, but not for many years has it been waged so bitterly as it was last spring. In the second week of last March, there was a burst of summer which sent the mercury up to a higher point than it had reached during the month for many years; but after two days a return of the north-easterly wind sent it down to an unpleasantly low point. Again, on the eighteenth of April, southerners woke up to find spring knocking at the door and bringing with it soft airs and hot sun. Two days afterwards, they were shivering in a biting north-easterly wind, and Paeonia Cambessedesii was blackened although under the shelter of an overhanging evergreen.

Not until the first week of July was the continental wind finally vanquished, after leaving its mark on the country in the shape of a severe frost on the night of July 1. That did a good deal of harm to the growing stems of Lilies in the south of England, and in many gardens L. regale, especially, was crippled. L. Hansonii is a precocious species, and unless cleverly sheltered from cold winds and frosts of more than 10°F., the young stems regularly pay forfeit. Last April they were badly scorched, but probably because of the dry weather, Botrytis did not follow as it usually does, and ultimately the plants made a welcome recovery. It is not often that anything goes amiss with L. giganteum in a cold spring, but even that suffered last June, and in a peculiar way, as water in the "cup" of the stem-growth froze and killed the flower-bud. An incident of that kind, although not rare in the case of Eremuri, is of interest as illustrating the truth of the saying that gardeners are always learning, for it has not previously come under the writer's notice in thirty years' observation of the genus.

So far as the effect of frost on the bulbs of Lilies is concerned, the frozen ground of last winter taught growers nothing they did not know before. Once again it proved the truth of the observation, so often referred to in these annual notes, that the bulbs of Lilies in general may be frozen hard for weeks on end without suffering any hurt. There may be a limit to the degree of cold the bulbs will support, and those of some species may, perhaps, be more susceptible to intense cold than others; but the point is probably only of academic interest in a country where the coldest winter of a generation has a beneficial rather than a harmful effect on Lily bulbs.

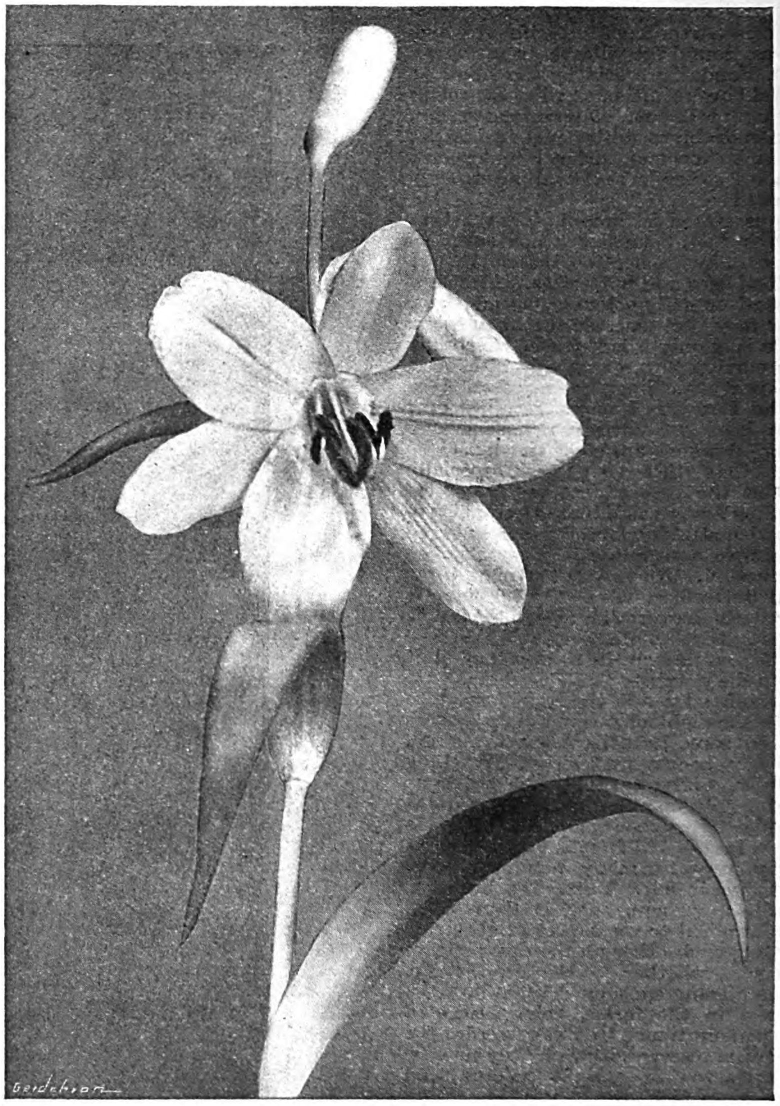

FIG. 226.—LILIUM MACROPHYLLUM, WILSON.
In bloom in Hyde Park, 1929.

The inspiring influence of frost on the germination of Lily seeds, too, has often been noticed, and it was most marked last spring. With seed-pans which were frozen solid in unheated frames until about the middle of March, germination was slow to begin, and in the dry, chilly weather of April, May and June, seedlings were reluctant to make progress; but it seemed as if every fertile seed must have been spurred into life, and when July brought balmy weather, progress was rapid enough to please the most impatient grower.

One effect of the intense cold was to delay the planting of Japanese Lilies, of which the bulbs reach our markets in January and February; and in few places in the south was planting possible until about half-way through March. Luckily, the frost kept the bulbs in good condition, and although, once planted, they were slow to grow, the cold state of the ground and the lack of rain were enough to account for that.

Reviewing the flowering season from early June, when the warm weather began, until the end, the conclusion is reached that the hot summer brought out the good points of Lilies of which the early growth had not been severely damaged by late frosts. At the same time, even during the fine weather, the behaviour of Lilies was far from normal, and sometimes it seemed as if there was some latent influence at work, apart from drought, to throw them out of their stride. A comparison with the summers of 1911 and 1921 is hardly apt, for in neither of those two memorable Lily years were the early months comparable to those of 1929. All three summers were characterised by severe drought, but the heavy rain storm of mid-July, 1929, made a world of difference to those southern gardens which were fortunate enough to lie in its path. The fall, however, was peculiarly patchy, and in some districts it rained heavily on one side of the road and not on the other.

As always happens in a dry summer, those gardeners who had been wise enough to provide irrigation to their Lily beds, reaped their reward. Others, who were content to take their chance, found that by the end of July the characteristic effects of drought were beginning to make themselves felt in familiar ways, and in such places it was interesting to watch the varied effect of a lack of moisture on different species, as the season progressed. As ever, the European species suffered least, because they are naturally able to make a better fight against such conditions than Asiatic species. Most of the latter depend for their welfare mainly on the mass of roots which forms at the foot of the stem, and any check to these has an immediate effect on the growth of the stem and flower buds. This is particularly noticeable in the case of L. auratum and its varieties, as well as L. speciosum and L. tigrinum. It is less noticeable with L. regale, but is by no means negligible in that fine species. Next to sunstroke nothing administers a check to the stem roots of Lilies like drought, and although, in a measure, mulching counteracts the effect of drought for a time in the case of those plants for which there is no water to spare, a drought has only to last long enough to paralyse the functions of their roots. In such a summer as the last, the obvious benefit of shade to most Lilies must have been brought home to gardeners who had not noticed it before. Here, again, the European Lilies are less in need of shade than others, but at such times they all appreciate it and it prolongs the flowering period in a remarkable way. Shading is a difficult problem which every gardener must work out in his own way and from the angle of shelter as well as shade. It is complicated by the fact that in our climate there are many dripping summers when even woodland Lilies need no shade. Then, too, Lilies in the humid climate of the north-western side of the country need far less protection from the sun than those on the southern or eastern sides, and less shelter from spring frosts and rasping winds as well.

Diseases of Lilies have been but little in evidence during the year. It is true that there was a good deal of Botrytis on Lilies in the south in May and June, but a damp atmosphere is an essential element in the life history of this fungus; and so, although the damage done to the leaves by the cold gave the pest the opportunity of systematic impregnation of which it is so quick to avail itself in a year of normal rainfall, the attack never reached serious proportions as it did, for instance, in the wet spring and summer of 1927.

On the other hand, evidence of the frost in the shape of browned leaf-tips was to be seen on Lilies on every side, even when they were in flower in July, and such a tough species as L. Martagon did not escape. The same thing was noticeable in the case of many species of Paeony, of which the earlier leaves were browned, although the flowers were not affected.

In this country, a hot summer and a "sulphureum year" are synonymous terms to Lily enthusiasts, and the Burmese Lily seems much less at the mercy of a dry spell than most other species. Much the same applies to L. Sargentiae, for the climatic conditions which suit one suit the other. It is true that there are gardens in the southern and western areas of Britain where these fine species persist from year to year, but they show their full beauty only in exceptional summers like those of 1911, 1921 and 1929. In an ordinary year, each seems to offer a mute protest against conditions they find too uncongenial, and although, from time to time, they are represented by inexperienced or interested parties as good garden Lilies, it cannot be too often insisted that they are for the few and not for the multitude.

Each may be seen at its best in a cold greenhouse, and then the full beauty of the tropical-looking trumpet of L. sulphureum is apparent; then, too, L. Sargentiae seems almost to rival the classic elegance and port of L. Brownii. Each species is easily propagated by the bulbils which form in such numbers in the leaf-axils, and if these are detached and grown in pans they make serviceable bulbs in three or four years.

There is no particular time for removing the bulbils, but the riper they are the better, and this is determined by their size and colour; when ripe, the bulbils of each species are so flushed with purple as to look almost black.

A simple way of increasing the size of stem bulbils is to pinch off the flower buds and then the energies of the plant are diverted to the nourishment of the bulbils. In such cases they may be as large as Filberts and bunched in clusters of three in the bract leaves, like the Apples one sees on neglected old trees. Those who think about such points will realise that just as the removal of the incipient flower buds makes for larger bulbils, so does the removal of the latter make for finer flowers. In either case the plant is lightened of part of its life's burden. Bulbils should not be sown like seeds, but pressed down up to their necks in the soil of the pan. In mild winters, bulbils of L. Sargentiae are evergreen.

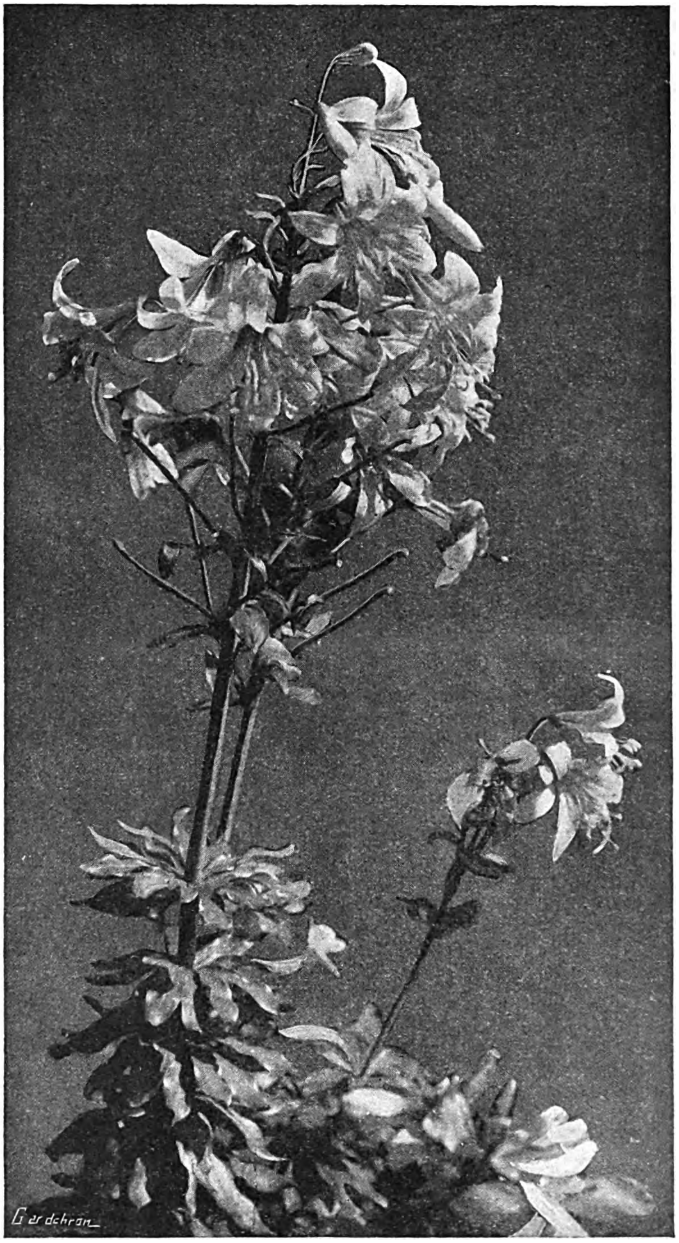

FIG. 227.—LILIUM WASHINGTONIANUM.

An old plant in bloom in Mr. R. Dimsdale's garden at Eastleigh, 1929.

Of Lilies which are comparatively new to cultivation, Ward's No. 6,034 has confirmed the good opinion formed of it by those who have handled it. Whether it can be regarded as a garden Lily like L. regale, L. pardalinum, L. croceum, L. Martagon and L. Henryi, among others, has still to be proved, but meanwhile it cannot fail to find a welcome in places where plants are cultivated for their natural beauty. This Lily is easily propagated, and so should soon find a host of new friends.

During the year, Mr. T. Hay succeeded in flowering L. macrophyllum, Wilson (Fig. 226), from bulbs raised from seeds sent by the Prime Minister of Nepal for use in the Royal parks and gardens. It is never wise to judge a Lily from specimens in the juvenile stage, for such things alter as they grow up, and there is always the possibility that as this particular plant grows up it may prove to be identical with L. hyacinthinum, Wilson. There has been a good deal of confusion about this plant since Don first described it as Fritillaria macrophylla.[*] For the moment, it is sufficient to regard it as an engaging little plant with which those who have a heated or unheated greenhouse may hope to become better acquainted.

In the south of England, the bulbs of all Lilies have ripened well, and that should help them through the battle with the excessive rainfall of the late autumn and early winter. The waterlogged condition of the upper strata of the soil will no doubt prove as deadly as ever to dormant bulbs which have come from afar and are in the ground already or are soon to be planted. Those who are wise enough to pot up such bulbs now and plant them out next year will reap their reward.

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[*] *Prodr. Fl. Nepal.*, 1824.

An interesting feature of 1929 is the growing interest American gardeners are taking in the cultivation of Lilies. Their interest is fostered by the publication of books dealing with the genus, the issue by dealers of elaborately illustrated catalogues, and by bulletins about the genus and its cultivation prepared by that enthusiastic Lily grower, Mr. David Griffiths, and published by the U.S.A. Department of Agriculture. One such bulletin is that on *A Score of Easily Propagated Lilies*, which was published last year.

So great is the interest in Lilies evinced by American gardeners that stocks of many species and varieties have been depleted, with the inevitable consequence of an increase in the price of bulbs and heavy importations of them from abroad. The American shortage has its repercussions in this country, both in the supply of bulbs of some species and the price.

L. Washingtonianum is not a Lily for everybody, but is certainly one for enthusiasts, as the photograph (Fig. 227) shows. It is of an old plant in Mr. Robert Dimsdale's garden of good things at Eastleach, in Gloucestershire, and was taken last summer.

The characteristic formation of bulblets in the "hair" of the stem-roots of L. regale is well shown in the illustration (Fig. 228). This species is never so prolific a mother as L. longiflorum, but none the less this habit of self-propagation is a useful one if only because it means a gain in time of a year over seminal propagation. *A. Grove.*

PLANTS NEW OR NOTEWORTHY.

PHYCELLA BICOLOR, Herbert.

P. corusca, Van Houtte, in *Flores des Serres*, IV, 419; Amaryllis bicolor, Ruiz et Pavou; Amaryllis cyrtanthoides, Sims, in *Bot. Mag.*, t. 2,399.

There is no doubt that the plant described below belongs to the same species as that well figured by Messrs. Van Houtte. I have also examined the figures in *Bot. Mag.*, and in Ruiz et Pavon. These latter seem to be varieties of the same species. I have not examined the figures in *Bot. Reg.* quoted by Baker (t. 809 and 1943).

Baker has placed Phycella as a sub-genus of Hippeastrum, although, according to him, appendiculate stamens are distinctive of the Pancratiae. Hence it seems a *tour de force* to include Phycella under Hippeastrum. Herbert, who was under the disability of having to work with dried specimens, allowed generic rank to Phycella, which he placed in a group of genera called by him Hippeastriformes. Subsequent botanists have done away with his generic classification and have left the true generic classification of these plants in a state of doubt.

We should remember that the classification of the bulbous Amaryllids had been founded upon the plants of the Old World, and was already to some extent formulated before the Amaryllids of South America were known to European botanists. Hence the inclination of modern botanists has been to push the Andine Amaryllids into any hole or corner in the existing systems of classification. Moreover, the number of living plants available to European botanists is far too limited to enable them to formulate any comprehensive system of nomenclature for such plants as the Phycellas. If Herbert allowed too many species, Baker has probably gone to the opposite extreme.

I cannot find any record of the seeds or fruits of a Phycella, or of any hybrid having been raised between Phycella and another genus.

The plants from which this description was taken were shown in flower by Mr. T. Hay before the Scientific Committee of the R.H.S. on November 19, having been imported from Peru.

DESCRIPTION.

Bulb.—One-and-a-half inch or less in diameter, with a tapered neck. Tunics brittle, dark brown to nearly black.

Leaves.—Five, fifteen to eighteen inches long by half-an-inch wide, rather fleshy, slightly channelled, with rounded back on which the distinct longitudinal veining can be felt; dull on the face, glabrous on the back, the apex rounded. The leaves are flexed and become prostrate at maturity which takes place at the flowering period.

Scape.—Issuing from a central position between the bases of the leaves, erect, not compressed, one-and-a-half foot high over all, bearing an umbel of five scentless flowers opening in succession, about two being expanded on any one day.

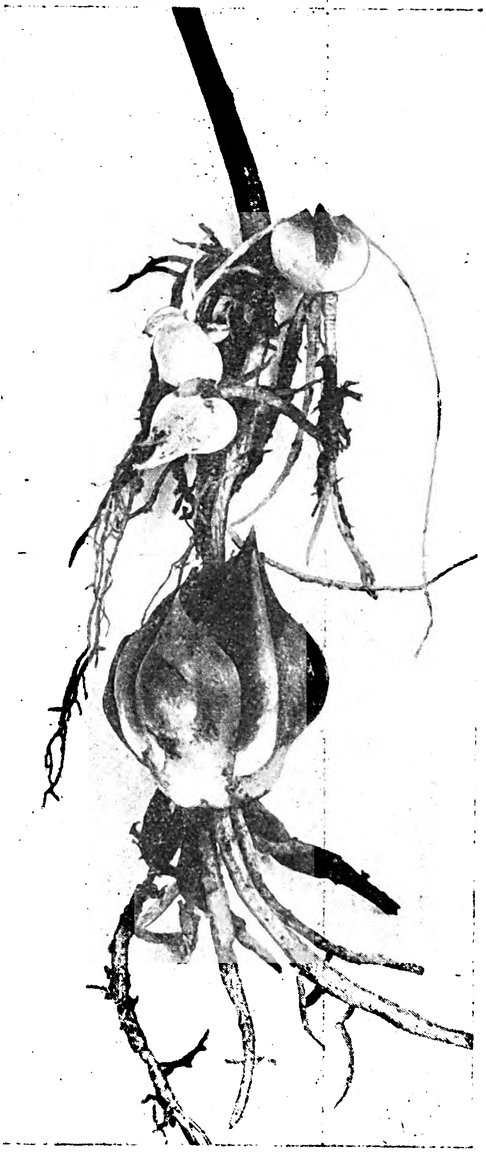

FIG. 228.—LILIUM REGALE.

Showing the habit of forming roots and bulbs on the stem.

Valves.—One inch long, cut to the base, shrivelled at flowering time. Bracteoles one to each pedicel.

Pedicels.—About half-an-inch long at expansion.

Tube.—Bent downwards, about one-eighth-of-an-inch long or rather more.

Flowers.—Bicolored, the lower half yellow, the upper red, semi-patent below, only the tips of the segments being open. Limb one-and-a-half-inch, span three-quarters-of-an-inch. Each flower fades about four days after expansion. In the dark days of winter the yellow parts of the flowers become white.

Segments.—All six about one-and-a-quarter inch long and of equal width, being dilated in the upper half from a width of one-eighth-of-an-inch in the yellow half to three-eighths-of-an-inch in the red.

Stamens.—Contiguous, of unequal lengths, but all slightly exserted, each one accompanied at or just below its point of attachment by one long, slender "tooth" or subsidiary process. Pollen golden.

Style.—Exceeding stamens, ruddy above. Stigma sub-capitate.

Ovaries. — Three-sided, ovules superposed, numerous in the upper part of the placenta.

Fruit and Seeds.—Unknown.

CULTURAL NOTES.

Herbert succeeded in flowering a species of Phycella against an outside wall. I have had but few of this genus under cultivation and can write little about them. Most Chilean and Peruvian Amaryllids are difficult to grow near London, but Habranthus pratensis flourishes in a few parts of England. *A. Worsley, Isleworth.*

PROBLEMS OF PLANT LIFE.*

XV.—THE DESERT FLORA.

WE seem to pass by an easy transition from the last problem touched upon in this series of papers (see page 446) to that which presents itself when we are brought face to face with the plant life of the desert and similar localities. If the problems of the bog are great and many, those of the desert are equally so, although of a totally different character. True, in each case we have an absence of available humus, nitrogen salts and fertilisers, but here drought takes the place of moisture, and as a rule there is an excess of heat, an absence of shade, great exposure to wind and sun, and a constantly shifting bed. Such conditions demand new adaptations, as different from those of the bog plants as are those of the bird which flies from the fish which swims.

The nearest approach which we have to a desert flora in this country is that of our sand dunes, particularly on the sea coast. The text-books, with their learned terminology call the plants which affect dry places xerophytes, and have much to state of xeromorphy and xerophytism. Such terms are better suited to a text-book than to a weekly journal, and will be introduced with the greatest possible economy.

In the case of the desert flora, then, the problems are how to thrive on a minimum of moisture, with excessive heat, little nitrogen, few salts, and an uncertain foothold. Provision has to be made against undue transpiration and special foes and dangers; store chambers may be necessary for the conservation of the water supply, and means of fertilisation and distribution must be provided. Well do I recall my first experience of the desert, and the disappointment I experienced in my endeavours while on my travels to keep specimens of such plants as the Camel's-thorn (Alhagi, or Hedysarum).

Drought may be regarded from different points of view. The dryness may be in the soil or in the air. These may act separately or in partnership, so that we may have a moist soil and a dry wind, or a parched soil with a saturated atmosphere, or atmospheric drought in combination with drought of the soil. Thus, as has been pointed out by many observers, wilting may be produced by a hot, dry wind even upon plants growing in a relatively moist soil. Conversely, growth may be good in a dry soil which is favoured with a moist atmosphere. The true desert usually combines both kinds of drought, there being a minimum of moisture alike in the soil and in the atmosphere.

It follows that a plant which is to withstand the effects of a hot, dry wind in a parched soil must be possessed of special qualities. Some plants meet the need by means of a well-developed root system. This is well seen in the case of our Marram-grass, botanically known as

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* Previous studies appeared in our issues of April 13 (p. 279), June 15 (p. 446), Vol. LXXXV; July 13 (p. 30), July 20 (p. 50), July 27 (p. 71), August 17 (p. 130), September 7 (p. 187), September 14 (p. 207), September 28 (p. 247), October 5 (p. 268), October 12 (p. 288), November 2 (p. 346), November 23 (p. 406), and December 7 (p. 446).

Ammophila, or the Sand-lover, because its widely creeping root-system binds the grains, and so proves a splendid means of checking sand-storms. Along with this one often finds small, deeply dissected leaves which do not transpire too freely although provided with ample water-conducting tissue. Such are the desert-loving Umbelifers, and such plants as the fragrant Wormwood (Artemisia fragrans). And here it may be remarked that plants of this description are frequently noteworthy on account of their aromatic properties. Gums and resins, oils and essences, fragrant perfumes and ravishing scents, together with vivid dyes and striking pigments, are largely derived therefrom. Valuable as these commercial products have become to man in the course of ages, their existence in regions seldom visited by him suggests that their primary use was not for human beings, but had reference to the plants themselves and to the desert fauna. They were of value in many ways, chiefly we may surmise as preservatives against injury and inducements to birds and animals to render service.

That eccentric but very learned traveller, Richard F. Burton, has many references in his various works to desert plants. We could not "help admiring the perfumed vegetation of the desert," he remarks in one place; describing it as small, tender and *mignonne* as that of Iceland, filling the liberal air with its lavish fragrance. He was a careful collector of such plants, and found the Bedouin full of instructive lore. The chief peculiarities which he noticed were as follows. The foliage is reduced to a minimum. Superfluous moisture is stored up, either in fleshy stems or underground reservoirs against long-continued drought. Gums and resinous matter often encrusts the stems; many plants have glaucous stems or leaves, or are completely covered with a hoary pubescence; not a few are viscous, adhering to the hand like glue, while a large proportion is distinguished by the aromatic odour or by greater or less pungency. Another thing which is noteworthy is the small number of species in comparison with the genera and orders.

A few of the better-known plants of the desert call for mention here. The Old Testament allusions might lead one to suppose that they are in the first place thorny and spinous. The desert is to rejoice and blossom as the Rose, and instead of the Thorn and the Brier, the Myrtle and the Fir tree shall flourish. It is noteworthy that thorns and prickles occur on dry and barren soils, their use being in part defensive. The Camel-thorn is a Legume, and recalls the Rest-harrow, Gorse and other spiny plants. The foliage of such plants and, indeed, their whole appearance, is usually quite different from that of field plants, being marked by a whitish, sea-green, bluish or glaucous appearance. This hue is familiar to us in connection with such plants as the Sea Holly (Eryngium); Sea Buckthorn with the leaves silvery beneath and adorned with a coating of remarkable hairs; Sea Lavender, and other maritime plants found in this and many lands.

Associated with the fragrance of the foliage and the odorous character of the gums and exudations is another interesting feature. The fruits of such shrubs, bushes and trees as occur are often remarkable for their sweetness or pleasing taste and usefulness as articles of food. We may assume that this fact is primarily related to their distribution by birds and animals, but man has not been slow to utilise their good qualities. Palgrave tells us, for example, of a small herbaceous and tufted plant which is found in the desert of northern Arabia and bears the name of Samh. It has juicy stalks and a small, yellow-tinted leaf of an ovate form, the flowers being of a brighter yellow with many stamens and pistils. The fruit is a capsule about the size of a Pea, which contains a mass of minute reddish seeds which are very farinaceous. Growing up spontaneously, the fruits of this plant supply the Bedouins with food which is better than Barley-meal.

Another shrub, which attains a height of two or three feet, is the Mesaa. It yields in summer fruits which closely resemble our Red Currant in size, colour and taste. This is evidently adapted to meet the needs of the desert birds, but man has turned it to account. The Nabak is similar to a small Crab Apple, and although a mere bush in the desert grows elsewhere into a stately tree. The name is variously spelt and translated, as Nebek, Lote, Jujube, Sidr and the like, and the tree is well-known to all travellers in the East because its thorns are said to have been used for making the Saviour's crown. Alhough little can be written from the Englishman's standpoint in favour of the fruit, it is a great favourite with the Arabs of Medinah.

The flora of the desert, then, like that of the bog, shows signs of adaptation. It had to meet a problem, and it did it in a variety of ways, as by developing spines, yielding gums, assuming a pubescent and glaucous appearance, producing fruits suitable for distribution by the birds and animals of the locality, storing up moisture, regulating transpiration and the like. A whole chapter might be written on the latter subject, but it has been so fully treated by others that a repetition of their statements is uncalled for. *Hilderic Friend.*

A FEW UNCOMMON TREES AND SHRUBS.

Whenever I see Pieris taiwanensis at Wakehurst, with its bright red young growths, I am entranced with its beauty; unfortunately Pieris will not grow on the chalk. A like marvel, however, is at hand to console me, in Aesculus neglecta var. erythroblastos, Hort. Späth., the young shoots of which vary from lobster-red to shrimp-pink. This tree will grow to fifty feet, when it must be one of the most beautiful plants in the world. The species comes from North America, and is quite hardy, although a late frost spoils its beauty. All Hornbeams do well here, and I like their elegant, corrugated leaves. Carpinus laxiflora var. macrostachys is, however, something exceptional; the spring growths at the ends of the long, pendulous branches remain bright red throughout the summer. Berberis Nevinii was recently rediscovered by Mr. Menzies, of San Francisco, on the sea-shore near Santa Barbara; it belongs to the Berberis (Mahonia) Fremontii and B. trifoliata class; the elegant, small leaves are glaucous and thickly set on the reddish stems; the flowers are stated to be bright yellow and rather large and the fruits red. Like most Californian plants, B. Nevinii is quite hardy, even in exposed situations, so long as the drainage is good; alongside B. trifoliata it withstood 30° of frost last winter in a wind-swept spot.

Drainage is indubitably the secret of success, whether for Calochortus or for Gilia capitata, or for shrubs like Carpenteria or Fremontia. Fremontia mexicana is generally regarded as a sub-species of F. californica, but their behaviour is very different. Home-saved seeds of the Mexican plant germinate in a few weeks, while similar seeds of the Californian plant take months. The former flowers freely at eighteen months from sowing, the latter takes at least four years. Nor can I keep F. mexicana out-of-doors anywhere. Another Californian plant which will not survive here in the open is Dendromecon rigidum. It flowers freely and in August begins to grow at an amazing rate, until its career is checked by the first hard frost, which kills it. It may be kept alive during mild winters under a shelter or on a wall. In California it doubtless makes its growth earlier and the wood is ripe, the plant dormant and the soil dry when the cold weather comes. Singularly enough, that curious plant, Fallugia paradoxa, with its white, Rubus-like flowers and silky seed-heads, was killed by the drought this year, although it comes from sun-baked Arizona. Many years growing in England must have given it a taste for rain!

Daphne retusa is a great favourite of mine; here, it makes a compact little bush two feet six inches to three feet high. The flowers are as large and as fragrant as those of D. odora, and the plant is prodigal of its scarlet fruits. It may be raised from seeds—I have found self-sown plants—or from cuttings, or may be worked on the roots of D. Mezereum. A very difficult plant to establish is Daphne Genkwa, but the long wands of lilac flowers in May are worth a struggle. I have two good plants remaining from five imported from Japan in 1927. They both flowered freely in 1928 and again, in spite of the winter, in 1929. It is clearly not the cold that kills this Daphne. We grow it right in the open in fairly good natural loam, near the wood and the river; it gets little sun until the late afternoon. Magnolia macrophylla is a deciduous tree with very large leaves up to three feet long and immense flowers some fifteen inches across. It is rare in its native country, South Carolina, and is difficult to layer; it might be worked on M. hypoleuca. Mr. Lionel de Rothschild has some fine young trees at Exbury, and there is, or was, a big tree at Claremont. M. macrophylla is quite hardy, but a slow grower; my plant is thirty years old and about twenty-four feet high. Lady Moore sent me from Ireland a few days ago two pods of Magnolia Campbellii from a tree Sir Frederick Moore knew in 1880, and which has fruited for the first time.

Unfortunately, the fragrant Buddleia asiatica is not hardy, but we have a very good substitute in B. auriculata, which is sweetly-scented and flowers from October to January. Buddleia caryopteridifolia is an interesting Chinese plant that forms its flower buds in the autumn and produces its rather large pink flowers in April.

Salix irrorata has the whitest stems of any Willow and its catkins have warm, brown bracts and golden anthers. A very old garden plant rarely seen nowadays is the Ring Willow, Salix babylonica var. annularis, in which the leaves are curled like a steel-spring; it forms a most comely small tree. Sassafras officinale, although introduced from North America nearly three hundred years ago, is little known in this country. It is a very handsome tree, with large, lobed leaves; the tree at Claremont is sixty feet high. Piptanthus nepalensis is an old favourite, but P. tomentosus, from China, is a more elegant plant, with foliage as silvery as the Cape Leucadendron. It is quite hardy in the open and sets seeds freely.

Danae racemosa (Laurus), the Alexandrian Laurel, is better known in the florist's shop than in English gardens. Yet, in a stiff soil, in a moist and shady position, it will make growths four feet high, which remain bright green throughout the winter and last a long while when cut. The orange berries (not red as stated by Bean) are produced at the end of the spikes after a hot summer. Butcher's Broom, Ruscus aculeatus, is quite a different kind of plant, in which the flowers, and subsequently the fruits, are borne in the middle of the leaf-like cladode. Recently a form has been put into commerce in which both sexes are found on the same plant. This berries freely and is known as B. a. var. hermaphroditus, Hort.

To conclude these notes, may I suggest that we often coddle our plants too much. Most shrubs dislike damp, stagnant situations, and when full of sap, fall easy victims to the frost. Good drainage is more important than good soil; wind helps to ripen the wood and the so-called shelter-belts—I am not speaking of Rhododendrons—are often actually harmful. *William Lawrence, Burford.*

NOTICE OF BOOK.

The World's Grasses.*

The author states that his first-hand knowledge of Grasses was acquired in Great Britain and South Africa, the latter having representatives of the most important genera in the world. He admits that botanical science has not been able to throw much light on the origin of the family. Such fossil Grasses as have been found in Cretaceous and Eocene times are closely similar to the Reed Grasses, Arundo and Phragmites, and might be identical. They are now regarded as having been derived from primitive Liliifloral forms, such as the modern Rushes (Juncaceae). Although allied to the Sedges, they are distinct and form an isolated family, although intricate among themselves. The most primitive Grasses are the Bamboos, and the most advanced are the groups represented by Maize and Andropogon. Bamboos have generally six stamens, though some have only two or one, and while this means an advance, it is not so in general efficiency. The genus Ochlandra is abnormal in having six to one-hundred-and-twenty stamens and eight or more lodicules (perianth parts). Some primitive Bamboos have three styles, and with the six stamens point rather strongly to a Liliaceous floral diagram. In the simplicity of their floral envelopes, the bracts and spikelets of Grasses are the most useful for classification.

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* *The World's Grasses, their Differentiation, Distribution, Economics and Ecology*, by J. W. Bews, M.A., D.Sc., F.L.S., Professor of Botany in the Natal University College, Pietermaritzburg. With illustrations. Longmans, Green and Co., London, New York, Toronto. 1929. Price 21s. net.

After discussing the general differentiation of the Grasses, the author proceeds in the third chapter with a key to the tribes and genera. The family is Poaceae or Gramineae, in which he gives two sub-families, namely, Pooideae and Panicoideae. These he divides into fifteen tribes, commencing with Bambuseae as the most primitive, the fruit being a nut, berry or caryopsis, the last form being the highest development. A key to the genera is next given under their respective tribes.

Three chapters are devoted to the distribution, ecology and economics of the genera. It is interesting to note that the common Reed Grass (Phragmites vulgaris of Crepin, or P. communis of Trinius) extends all over the world in marshes, on river banks, etc., but that is general in the case of aquatics. The Meadow Grasses (Poa) in the form of different species extend over all the continents of the world, including Australia, New Zealand, and smaller islands. The most important is Poa pratensis, which occupies meadows in all parts of Europe and Asia, while it is, economically, the most important in North America, to which it has been introduced. In a wild state, P. trivialis and P. nemoralis, have a similar distribution. Crossing experiments have shown that Avena sativa and A. s. var. orientalis have been derived from A. fatua, and the Annual Rye (Sicale cereale) from the perennial S. montanum. The Wild Emmer (Triticum dicoccoides) has given rise to eleven races, of which the common Wheat (T. vulgare) is one—a vast collection of mutants and hybrids. It is not surprising that De Candolle in his *Origin of Cultivated Plants*, was unable to give a wild habitat for the cultivated cereals. The Sugar Cane is probably a native of India. Euchlaena mexicana hybridises with the Maize (Zea Mays) of which there are six sub-species, or species according to other botanists. Some of the forms may really be hybrids, for Maize is believed to have originated in Mexico. It is now cultivated in all the warmer parts of the world as human food, and in temperate regions as fodder for stock.

The author gives a statistical summary of 483 genera and 5,871 species, although in another part of the work he reduces the number of species to 5,750. At the lowest computation of Bentham and Hooker there were only 298 genera and 3,055 species, but these authors admitted that other botanists greatly augmented the number in some genera. For instance, they allowed only eighty distinct species of Poa, while the present author admits 200. Of course, some new species have been described since the *Genera Plantarum* was published.

Two chapters are devoted to "The General Ecology of the World's Grasses and Grasslands," and these will prove the most interesting to students and general readers, the previous chapters being of more special use to botanists. Here the evolutionary aspect of the subject is kept in view. The Grasses of the moist tropical and sub-tropical areas of the globe are the oldest and most primitive, because the conditions have been, practically, uniform over a great period of geological time. Changes were introduced as Grasses colonised deciduous woods and others moved into drier regions and became more sclerophyllous. The author traces a migration of sclerophyllous plants from the temperate regions of South Africa, higher and higher upon the mountain ranges as the tropics were approached, until some of their members reached the mountains of central Africa and Abyssinia, thus connecting with the Mediterranean region. This sclerophyllous vegetation, the author states, has chief claims to rank as the oldest of the temperate floras, and includes species of Festuca. The grasslands of the world are old, and derivative from the primitive hygrophyllous ones by long descent. The annuals and ruderal Grasses are very recent, being a response to regions with a wet winter and dry summer. Agrostology, he states, is one of the most important branches of botany, since the Grasses supply most of the food of man, directly or indirectly, as well as the food of herbivora directly and the carnivora indirectly.

The book contains many excellent line drawings of Grasses, and some of sections and diagrams. Paper and type are excellent, and the same may be written of the editing. The principal mistake noticed was Cynosurus aristatus for Crested Dog's Tail Grass, which seems to have been mentioned only from the Montpelier Botanic Garden, as a plant without habitat. In both cases, probably, it was only a *lapsus memoriae*. It should have been C. cristatus. The book contains an extensive bibliography and a good index.

THE GENUS PRIMULA.

(*Continued from p.* 470.)

TONGOLENSIS (Franch.). Tongolo P.

(Petiolaris-Tongolensis).

A little-known dwarf species with a rosette of nearly smooth, thick, oval leaves, two to five inches long, blunt at the tip, rotund or truncate at the base, borne on stalks longer than the blade; margins edged with blunt, rounded teeth. Flower stem slender, two to five inches tall, bearing a solitary blossom the colour of which has not been recorded. Corolla about one inch long, with narrow, shortly bilobed segments; tube narrow, longer than the calyx.

This species is apparently confined to the neighbourhood of Tongolo, in western Szechuan, western China, at a considerable elevation above sea-level.

Culture: As for P. soldanelloides.

TOSAENSIS (Yatabe). Tosaen P.

(Reinii).

A pretty, somewhat dwarf, perennial species with a sparse tuft of membranous leaves, with very broadly oval or nearly circular blades one-and-a-half inch to two-and-a-half inches across, heart-shaped at the base, borne on rounded stalks one inch to three inches long, densely covered with long hairs; margins cut into small, somewhat blunt, toothed lobes; both surfaces covered with long hairs and deeply veined. Flower stalk erect, slender, very hairy, three to five inches tall, bearing an umbel of three to nine somewhat drooping, magenta-pink flowers with yellow throats. Corolla three-quarters- to one-and-a-quarter inch across, divided into five widely separated, rounded lobes bifid at the tip; tube cylindrical, about half-an-inch long. Introduced in 1914.

Grows in damp, somewhat shady places on hills in the Province of Tosa, in Nippon, also in Sikoku, Japan.

Culture: As for P. Reinii.

TRAILLII (Watt). Traill's P.

(Obtusifolia).

A very handsome, robust, deciduous perennial species with a tuft of thin leaves seven to nine inches long, with elliptic, oblong or egg-shaped blades rounded at the tip, gradually tapering to a thick stalk, dilated and sheathing the rootstock at the base, which is clothed with mealy scales when at rest; margins of leaf more or less toothed; underside densely coated with white meal. Flower stem stout, coated with white meal, fifteen to twenty inches tall, bearing two or three superposed umbels of pale blue blossoms on long stalks. Corolla about three-quarters-of-an-inch across, concave, divided into five egg-shaped, entire lobes; tube cylindrical, membranous, about three-quarters-of-an-inch long, with a ten-lobed ring in the mouth. Figured in *The Gardeners' Chronicle*, 1897, vol. xxii, p. 263, fig. 80. Not in cultivation.

Grows in rather dry situations in the dense shade of rocks in rich soil, near the Kangra Kulu and Sharran glaciers, in the north-western Himalayas, at about 16,000 feet above sea-level.

Culture: Rich loam and Oak or Beech leaf-soil, in a well-drained, shady spot, is suggested.

TRILOBA (Balf. f.). Three-lobed P.

(Dryadifolia).

A very beautiful, minute species, hardly three-quarters-of-an-inch tall, with dense rosettes of tiny leaves forming cushions of foliage two or three inches across. The oval, blunt, somewhat fleshy leaf-blades are divided to the middle into three lobes and taper at the base to a short, broad, strap-shaped stalk, in all about half-an-inch long; both surfaces pale green and clothed with minute, meal-producing, glandular hairs, which form a fringe on the margins. Flower stem about one-eighth-of-an-inch long, glandular, downy, bearing a bright rose, yellow-eyed blossom immersed in the foliage. Corolla about half-an-inch long, with blunt, egg-shaped, deeply bifid segments; tube broad, with a dense tuft of snow-white hairs in the throat. Flowers in August.

Grows in stony, alpine pastures near Tsarong, on the Sondre-shan, in south-eastern Tibet.

Culture: Peat, friable loam and limestone chips, in an open spot well supplied with underground moisture in summer, with protection from damp in winter, should prove congenial to it.

TYROLENSIS (Schott.). Tyrol P.

(Auricula-Rhopsidium).

A very beautiful little European perennial species with a stout rootstock which elongates with age and is clothed with the dried remains of previous season's foliage. The leaves are produced in tufts and have almost circular or very broadly oval blades a quarter- to one-and-a-quarter inch long, narrowing abruptly to a distinct stalk; margins minutely and irregularly toothed; both surfaces bright green, covered with many minute, colourless, viscid glands. Flower stem slender, three-quarters- to one-and-a-half inch tall, covered with viscid, glandular spots, and bearing at its apex one or two bright, soft pink, white-eyed blossoms. Corolla over three-quarters-of-an-inch across, with heart-shaped, cleft lobes. Flowers in June and July. Illustrated in *Jour. Roy. Hort. Soc.*, Vol. XXXIX, 1913.

Grows in cool, damp crevices and on the ledges of limestone rocks and cliffs, usually with northern exposures, in the Dolomites of southern Tyrol.

Culture: It should be planted in peat and limestone chips, in a cool but well-drained spot in half-shade; it succeeds in a limestone moraine or in pots in a cool house.

TZETSOUENSIS (Petitm.). Tzetsouen P.

(Rotundifolia).

A smooth, non-mealy, perennial species with a tuft of distinctly stalked leaves with lance-shaped, very pointed blades, three-quarters- to one-and-a-quarter inch long, heart-shaped at the base, borne on narrow stalks three or four inches in length; margins furnished with sharp, saw-like teeth. Flower stem six to eight inches tall, smooth, bearing an umbel of about three yellow blossoms, on stalks about three-eighths-of-an-inch long. Corolla nearly flat, about three-quarters-of-an-inch across, with narrowly oval, entire lobes; tube cylindrical, about three-quarters-of-an-inch long, twice as long as the calyx.

This species is found at Tzetsoue, near Bathang, in eastern Tibet.

Culture: As for P. rotundifolia.

ULOPHYLLA (Hand.-Mazz.). Oblong-leaved P.
(Bullatae).

A dwarf, shrubby species closely allied to P. bracteata, with a slender, unbranched rootstock which produces a rosette of oblong, blunt leaves one inch to four inches long, more or less rounded at the tip, very much undulated, gradually narrowed to a winged stalk which is dilated at the base and shorter, rarely longer, than the blade ; margins more or less edged with coarse, blunt, regular teeth and fringed with fine, glandular hairs ; upper surface sparsely, and underside densely covered with short, glandular hairs. Flower stems one to three in number, slender, shorter than the foliage, bearing many-flowered umbels of yellow blossoms on stalks a quarter- to three-quarters-of-an-inch long. Corolla over five-eighths-of-an-inch across, glandular, downy externally, with broadly egg-shaped, shallowly-notched lobes ; tube cylindrical, slightly longer than the calyx. Flowers in June. Not in cultivation.

Grows on the mountains of Tashwaschan, near Beyendjing, in Yunnan, western China, at about 8,000 feet above sea-level.

Culture : As for P. Forrestii.

UMBRATILIS (Balf. f.). Shade P.
(Soldanelloidae).

A dwarf, sparsely foliaged perennial species with a rosette of deep green, rugose leaves, about three-and-a-half inches long, with oblong or nearly elliptic blades, blunt or rounded at the tip, narrowed at the base into a wedge-shaped, narrowly-winged stalk equalling or longer than the blade in length ; margins furnished with short, pointed or rounded teeth or small lobes ; both surfaces covered with glandular hairs. Flower stem three or four inches tall, slender, deep green, glandular hairy, bearing a head of five or six deflexed, pale purple blossoms, which are bronze-coloured in the bud. Corolla about five-eighths-of-an-inch long, funnel-shaped, with meal-producing, glandular hairs in the throat. Flowers in September.

Grows in damp, shady places in rocky soil in Kurmathang Pumthang, in Bhutan, eastern Himalayas.

Culture : As for P. metria.

UMBRELLA (Forrest). Umbrella P.
(Farinosae).

A very delightful little species with the whole of its foliage, stems and calyces more or less coated with golden-yellow meal. The oblong leaves, in rosettes, are about one-and-a-half inch in length and taper to a wedge-shaped stalk ; the margins below the middle are entire, while above the middle they are recurved and furnished with sharp, saw-like teeth terminating in horny points. Flower stem two to four inches tall, bearing an umbel of six to eight lilac or soft, deep rose-pink blossoms, on stalks about four inches long, radiating from the top of the flower stem like the ribs of an umbrella. Corolla about three-quarters-of-an-inch across, with broadly egg-shaped lobes ; tube about twice as long as the calyx, pale, with lilac veins, more or less sprinkled with white meal both inside and out. Flowers in July. Illustrated in *Jour. Roy. Hort. Soc.*, Vol. XXXIX, 1913. Introduced in 1908.

Grows in stony alpine pastures on the Tali-Range, in Yunnan, western China, also on the shady ledges of cliffs and on humus-covered boulders on the mountains of the Chunchuan-Mekong divide, at 10,000 feet aboove sea-level.

Culture : Calcareous loam and peat, in an open, well-drained spot abundantly supplied with underground moisture when in growth, should suit it ; it increases very slowly.

UNIFLORA (Klatt.). One-flowered P.
(Soldanelloidae).

This exquisite little species produces a sparse tuft of broadly oval, rounded or oval-lance-shaped, pointed leaves about half-an-inch long and a quarter-of-an-inch across, borne on stalks about as long as the blade ; margins deeply pinnatifidly toothed, the teeth being coarse and blunt ; both surfaces more or less smooth and quite devoid of meal. Flower stem two to five inches tall, very slender, bearing one, or very rarely two, stalkless, nodding blossoms three-quarters to one inch across. Corolla pale lilac or pale violet, broadly funnel-shaped or nearly flat, divided into five or six egg-shaped, usually shallow and coarsely-toothed lobes ; tube about one-and-a-quarter inch long, funnel-shaped. Introduced in 1911. *Gard. Chron.*, 1912, Vol. LI, p. 407, Fig. 194.

Grows in damp, rocky soil in the Kankola Pass, in the Sikkim Himalayas, at 13,000 to 15,000 feet above sea-level.

Culture : Light, fibrous loam and peat in a damp, cool spot seem to suit it, but it is best grown in a cold frame and treated as a biennial. *A. W. Darnell.*

(*To be continued*).

INDOOR PLANTS.

CEPHALOTUS FOLLICULARIS.

THE New Holland Pitcher Plant, as Cephalotus follicularis is commonly termed, is a compact, small-growing, warm greenhouse plant that only attains a height of a few inches, but is one of the most singular plants in cultivation. Unlike the Nepenthes, the extremities of whose leaves form pitchers, Cephalotus produces pitchers from its main stem independent of the leaves. These pitchers are borne on stalks from two to three inches long, according to the strength of the plant.

When growing freely, C. follicularis produces suckers abundantly and may be propagated by removing these. They should be detached from the stem in spring, and placed singly in thumb pots. The material in which this subject grows best is fibrous peat and live, clean Sphagnum-moss chopped fine, in about equal parts, with a good sprinkling of powdered charcoal and sand. Press the compost firmly in the pots around the base of the suckers and afford a little water, after which stand them in a propagating bell-glass in a moderate stove temperature, shading them from sunshine. In about two months the suckers should be rooting freely and making leaves, when a little air should be admitted daily by raising the bell-glasses a little at one side. Keep them well supplied with moisture and grow them on for the first season in a temperature of from 50° to 55° by night. By the following spring the plants will require a shift into larger pots, using for this purpose a compost similar to that advised above. As the plants gain strength and increase in size the bell-glasses may be dispensed with altogether, for without the aid of these the pitchers are usually more richly coloured.

Care should be taken in the cultivation of this subject to avoid cold draughts by careful ventilation, and if all goes well the plants will go on increasing in size for several years, producing offshoots freely, a number of which may be taken off and treated as advised above. Greenfly is very partial to this plant and should be kept under control by fumigating with an approved fumigant. *J. N. McGoogan, Wisley.*

EVODIA ELEGANS.

THIS graceful and very useful foliage plant is not unlike Aralia elegantissima in form and habit ; the leaves are coloured a uniform shade of fresh, clear green ; the form is compact, the plant well-furnished and of irregular pyramidal habit. Each leaf consists of three long, narrow, undulated and crenate lobes, not unlike the leaves of several Codiaeums, and a well-grown example should be furnished with them from the rim of the pot to the apex of the stem.

This desirable subject is a native of New Guinea and so enjoys considerable warmth ; it thrives in light, fibrous loam mixed with a small portion of good leaf-soil and some sharp sand, and is not difficult to propagate if half-ripened shoots are secured and inserted in sand, over bottom heat. An older species, scarcely so attractive as E. elegans, is E. triphylla, introduced from the East Indies, in 1821. *R. E. A.*

HOME CORRESPONDENCE.

The Need of Education for Gardeners.—I have read with interest the letters which have appeared recently in your columns upon this subject, but note with regret certain mis-statements which appeared on page 430, from your correspondent, Mr. Bain. This writer states that the instruction given at the various horticultural colleges is mostly inadequate. May I point out that two of the three successful candidates in the general section of the N.D.H. Final Examination this year were trained at Reading University. Moreover, this college has produced two R.H.S. Gold Medallists quite recently, so well as other N.D.H. successes. Mr. Bain also states that facilities for scholarships, etc., are not sufficient. May I remind him of the Ministry of Agriculture's scholarships, entitling young gardeners to tuition and residence at farm institutes, colleges and universities for periods of from three months to three years. Also of the many County Council scholarships and grants for tuition at centres of instruction in various parts of the country. It is also suggested that the Royal Horticultural Society should organise correspondence classes for the thousands of young gardeners thirsting for R.H.S. and N.D.H. certificates and diplomas. May I point out, again, that the existing correspondence classes are already sufficient to meet the demands of the comparatively few gardeners who are really prepared to work and study hard for the various examinations open to the profession. I am personally coaching, at the present time, young men in America, India and the Malay States who will have to travel thousands of miles to take the necessary examinations for the N.D.H. That these men realise the value of such a qualification is undeniable, but there are others who, although they would like to hold diplomas and certificates, would not walk across the street to obtain the finest course of training it is possible to procure. The "something for nothing" attitude exists, not only among miners, but I fear is eating its way into a profession which, while it may not reward its adherents by high wages, at least offers many compensating advantages. *Wilfred G. Ibbett.*

——I have read with much interest the letters which have appeared in *The Gardeners' Chronicle* dealing with the need of education for gardeners. As a public school and university man, I should like to state a few plain facts. I have received a thorough general education, having won two prizes at school for good work, and also, in higher forms, having obtained several certificates in agriculture and allied subjects. I then entered a well-known university, where I attended a full two years' course in horticulture. At the termination of this period I obtained the university diploma, being placed in the first division. In addition to studying horticulture, both theoretical and practical, the following subjects were also taken : Botany, (including mycology and bacteriology), chemistry (including physics), book-keeping, horticultural entomology, surveying and geology. I think it will be agreed that this training is fairly wide and thorough. On coming down from the university, I entered a big private garden, where I have obtained over a year's practical experience. For the past four months I have endeavoured to obtain a post, in either a private garden or nursery, but have been unsuccessful. Mr. William Good, in your issue of November 23 (p. 411), states ". . . public parks and gardens have come into existence all over the country, and, through them, the need for well-trained gardeners remains. There are also many posts, both at home and abroad, open to men who have had a thorough training in horticultural work." I think I can claim to have had at least a fair, if not thorough, horticultural training, but where, may I ask, are the many available posts. The point now arises as to whether education is really needed in horticulture at all. It rather appears as if it were completely ignored by head gardeners and nurserymen : and this being the case, is it worth while for young gardeners to study for such examinations as the R.H.S. general examination, and the National Diploma in Horticulture ? Having passed the above examinations, what are they worth? Possibly the offer of a position at 25s. to 30s. a week. Is it worth it? *H. A.*

Lonicera nitida.—The notes appearing on this subject with regard to its adaptability, suitability and hardiness in various districts are very interesting, and show how careful one needs be to experiment with it before carrying out extensive schemes of planting. It invariably dies back in the London district. The most robust young stock of this subject seen by the writer was the surprising result of an experiment of planting rooted cuttings direct from the frames into new ground of very stiff clay, so stiff, indeed, that when the plants were moved the following autumn they were cut out in squares of clay. *H. G. K., Twickenham.*

John Cypher Memorial Fund.—Having been interested in this Memorial Fund from its inception, and studied the several lists of donations which have appeared in *The Gardeners' Chronicle*, it appears to me that while there has been a fair response from certain quarters, the rank and file of the horticultural craft have not had that opportunity of giving their shillings, which they would be reluctant to send personally to the Secretary, but which would be willingly given in a collection. May I, therefore, offer a suggestion which may appeal to many as proved at a recent meeting of gardeners I attended at Altrincham, where Mr. R. Greenfield was holding forth in his usual emphatic manner on "Gardeners: Past, Present and Future," and which, of course, brought forth the usual discussion, which he ended in a practical way by asking for a collection for the subject of my note. This particular Society is noted for its many activities, and the appeal was very favourably received, with the result that £1 18s. 7d. was collected, and will be further increased by means of a whist drive. If the various horticultural societies throughout the British Isles would follow this lead, I feel sure there would be great response, as everyone would have the chance to give as suggested, and help to perpetuate the memory of a great man. A further suggestion which, I think, would bear good fruit if carried out, is the provision of a collecting card to be used by secretaries and other interested parties, so that anyone could respond in a modest way, and the Societies concerned would be added to the list of subscribers. *Allan Falconer, Stamford Park.*

Beheading Brussels Sprouts—This alarming procedure was justified here this autumn, for, owing to the drought, the plants grew much taller than usual, and at the end of September showed no signs of forming "buttons." We were afraid they would bolt, so cut out the heads, which were used in the usual way. As a result of this treatment we have a grand crop of solid sprouts of excellent quality and just at the right season. This practice is usual in the Vale of Evesham, and explains why the growers are able to secure a maximum amount of large, firm Brussels Sprouts up to Christmas. The growers only reckon to pick two or three times before the plants are cleared. To a private grower the practice may seem useless, but where a maximum crop, in a given period, is wanted, it is an excellent method of securing it. Naturally, it should not be attempted where an extension of the crop into the late winter is desired. *G. H. Emmett, Taplow.*

Strawberry Leaves in December.—As the year is drawing to a close, a few remarks upon the beauty of Strawberry leaves may not be out of place. Plants of The Duke are two-and-a-half years old, and very prettily coloured; in fact, this variety takes pre-eminence as the best-coloured foliage Strawberry we have, the gold and red leaves being decidedly attractive at this season of the year. Even the leaf-stalks are bright, deep, brownish-red, and not on one side only, but every part of each petiole is coloured. Not all the leaves show the same intensity of colouring, nor do even the leaflets situated on the same petiole. Some are deep red, some bright yellowish-red, others yellow, while there are red and green, and green and yellow also. On the thin petioles the leaves are more brilliantly coloured; and this might be regarded as typical of The Duke, although it does not hold good in every case. Foliage of The Duke comprises withered, beautifully coloured, and fine, healthy, green leaves. On several plants green flower buds are showing; while from one or two trusses the petals have fallen, and immature berries have been produced, which in their proper season would have developed into good fruits. Sir Joseph Paxton is a vigorous growing variety, and the petioles of the leaves on many plants measure ten inches to over twelve inches long. The leaves and petioles which do exhibit colour are yellowish-red. On the whole, there is not so much colour and certainly not the redness found in other varieties. The young plants of Sir Joseph Paxton, set out about the middle of August, are splendidly healthy: each plant is furnished with six, seven or eight leaves, respectively, the larger ones resting on the ground; only the leaves on two or three petioles per plant have changed colour, the others are beautifully green, and many of them measure six inches across, while their petioles are four inches long. *D. A., Midlothian.*

Verbenas for the Rock Garden.—With reference to the recent note regarding the hardiness of Verbenas suitable for the rock garden (p. 403), the following note on varieties grown in a garden within nine miles of London may be of interest. In this garden the strong-growing and lovely V. venosa proved much the hardiest, appearing each spring for five years, without protection, not only where it had been planted, but also where it had freely seeded itself in the chinks of a crazy-paving path. V. radicans and V. Mahoneti, came next in point of hardiness, coming through most normal winters successfully. V. chamaedryoides proved more troublesome, and seldom could it be depended upon to come through even a "green" winter. It will often send up new growths in June from the apparently dead roots, long after all hope of its revival has been given up, but it is much better propagated by cuttings annually, as few care to wait until June for a plant to commence growth. *W.*

Grey Squirrels.—It was very interesting to read Mr. G. W. Stracey's paragraph on what I term one of the most destructive little animals to the horticulturist, *i.e.*, the grey squirrel (p. 451). I gave the grey squirrel a great deal of study during the eighteen months I was living in Little Gaddesden, Hertfordshire, where my work carried me over Ashridge, with its magnificent Beech and Oak trees. It is a fact that one could not walk more than a few hundred yards without seeing a grey squirrel which, in my opinion, has rather the appearance of our detested rodent, the rat, its tail being thin and long and quite unlike that of the beautiful English brown squirrel, which has a bushy tail, and is, so far as I am aware, quite harmless to our fruit crops, its menu consisting almost entirely of such things as Beech nuts and Acorns. The grey squirrel was imported from America into the south of England in the districts where the brown squirrel once thrived and has now been almost entirely wiped out. At the same time the brown squirrel was introduced into America, and I understand has practically wiped out the grey, and taken full possession of its domains; I am afraid the Americans have had the best of the bargain. During my stay at Ashridge, I discovered one brown squirrel who was a big, powerful chap apparently living all by himself and left alone by the greys, and appeared to be the one survivor (residents in the district informed me the brown squirrels used to be numerous) until, alas, one day I found brownie dead and his body badly mutilated; evidently he had been raided by the greys who had overpowered him by force of numbers. I can imagine he put up a very plucky fight. The grey squirrels, apart from robbing gardeners, are notorious poachers of eggs and chickens of game and domestic poultry, and worse than all, I have known the grey squirrel to strip young trees of their bark, with the result that unless treated quickly, the tree is killed in a very short time. *L. A. Huddart, 32, Upper Tichborne Road, Leicester.*

Gentiana sino-ornata.—I am exceedingly glad that my request for information regarding the disease which is stated to attack this glorious Gentian has elicited some valuable correspondence. No one can think more highly of G. sino-ornata than I do, and it is most desirable to discover, if possible, the cause of any difficulties which may arise regarding its successful cultivation. I especially welcome the experience of Mr. W. E. Th. Ingwersen (p. 442) as helping to throw light, not only upon the probability of excessive sunshine being the cause of the fungus, but as also dealing with the question of propagation. I think it is quite probable that G. sino-ornata may appreciate the climate of Scotland better than that of the south of England, and, so far, I have no information that the fungus disease has appeared in Scottish gardens. I am growing it in lime-free soil and in a rather stiff, clayey loam in one place, and in a lighter soil in several other positions. In two places the exposure is one in which the Gentian receives a little sun in the morning and again in the late afternoon, and there is no appearance of any disease. I have three other lots which receive a good deal more sun, although not so early in the day as the others and, here again, no disease is present. It is just possible that the presence of lime, associated with much sun, may be injurious to G. sino-ornata, but this question of lime in association with certain plants is an extremely difficult one, and the more one learns of it the less does one care to dogmatise on the point. *S. Arnott.*

Bullfinches.—During the severe spells of cold weather experienced in 1928-29, I feel sure that fifty per cent. of the bird life was killed in this district. On the face of it this seems rather hard, but perhaps, after all, it is a wise provision of Nature, as I have noted with alarm the great increase in birds which attack our fruits and buds. It is to be regretted that such birds as blackbirds and thrushes, which delight us so much with their song, should be killed, for it is an easy matter to protect fruit from their raids. One bird, however, I am pleased to note, is less numerous this year, and that is the bullfinch. In recent years bullfinches have increased tremendously, and I think the failure of the Plum crop can be attributed more to them than anything else. They do their work with a stealth and thoroughness that is extraordinary. In the large wild garden here there are hundreds of trees of Prunus Pissartii, Amelanchier, Cerasus, Pyrus species and Loniceras. All these things they are fond of, and sometimes the trees are absolutely denuded of their flower buds. During the winter of 1927-28, I bought two sacks of Coco-nuts which were all consumed during the winter, but I never saw a bullfinch touch them. Swarms of the tit family, however, ate them, and it was interesting to watch their acrobatics. I have proved that all the tit family do a great deal of good, and rarely attack buds. So I advocate ruthless attack on all bullfinches; shooting with a B.S.A. air rifle is the best—a good marksman can kill a lot, and they hate the "zip" of the pellets around them. I know plenty will think me cruel to kill a pretty bird, but its monotonous pipe is not worth hearing, and as a bird it is not nearly so pretty as a cock pheasant, which is killed and eaten in large numbers. I might add, that I have tried things advocated in these columns from time to time, such as blue rags, tins and fat, but I have proved them to be all useless as scares against the bullfinch. If the birds are reduced in numbers, as I think they are, we should see a good crop of stone fruits next season, no matter what the weather may be. *Frederick Berry, Moreton Paddox Gardens, Warwick.*

Mushroom Growing.—I wonder if your readers could help me in a difficulty about Mushroom culture? I am seeking information as to the various methods by which they can be grown. I am well aware of the universal method of growing Mushrooms in hot-beds of manure made up as flat beds and ridges. This is the method I practise. I am trying to discover other ways. I have searched past records but find very little has been written about this valuable crop. Is it possible to grow them on hot-beds of leaves in a special compost, or in beds of compost heated by hot water ? Perhaps there may be some old forgotten method of growing Mushrooms which your readers know of. I would be very grateful for information. *F. Faires.*

FOREIGN CORRESPONDENCE.

DELPHINIUMS IN NEW JERSEY.

THE recent note on Delphiniums (p. 325) arouses a responsive chord, but we in the Eastern United States are unable to emulate your successful culture of these plants, except perhaps along the extreme north Atlantic sections. In the North-West, the conditions are more suitable. I do not mean we in the East cannot grow good Delphiniums, but we cannot handle named varieties, for the simple reason that rooted cuttings or divisions do not possess the vigour of seedlings, and to ensure good results it is necessary to raise new batches of plants from seeds annually, as it is rarely that the plants carry on beyond the second year. Happily, the English breeders have so improved their strains that we can get a wonderfully high percentage of fine types. Some good American strains of seeds, all, I expect, derived from English sources, are available but I have not seen any that compare with the Blackmore and Langdon seeds obtained direct, and I hazard the guess that hundreds of keen gardeners here send to England for their Delphinium seeds. A few plant firms do, I believe, save some seeds for their own use, and quite recently I saw a batch of plants that was claimed to be from home-saved seeds, that was almost 100 per cent. good, some plants being equal to some of the named sorts I can recall, although none possessed flower spikes three feet in length and ten inches across the base, as I have seen reported upon at English shows in recent years. I have raised numbers from north-west American-grown seeds, the germinative qualities of which are high, but the strongest have usually been too soft in the stem to hold up the spikes and the percentage of choice flowers has been rather low. I have, at the moment, a nice batch of seedlings of what is claimed to be a wonderfully fine strain, and I shall interestedly watch its performance against the Blackmore and Langdon strain.

The great bugbears of Delphinium culture in this section of America are leaf blight and root rot. The leaf blight appears quite early in the season, although some plants are not affected until the flower buds show. The foliage is largely blackened, the buds also, and if not checked the flowers fail to develop. This blight is due to a mite and by persistent spraying with nicotine it can be checked, but it is an awful business when a large number of plants is grown and there is a lot of other work to be done.

Root rot just snuffs off the plants in a day or two and it usually comes when they have reached the flowering stage. So far, I have not mastered this rot, which I believe is largely brought about by the acidity of my soil, the land being formerly Oak woods. Azaleas and Rhododendrons grow especially well as a result of this, but for some other things it is not so good and liming has not, so far, improved matters. *T. Weston, New Jersey, U.S.A.*

A FURTHER NOTE ON THE BLACK DOT DISEASE OF POTATOS.

ATTENTION was drawn in *The Gardeners' Chronicle* of December 29, 1928, to the presence of the sclerotia of Colletotrichum atramentarium on Potato tubers in this country, and more records of the prevalence of the disease have been published since, elsewhere, viz., in the *Journal* of the South-eastern Agricultural College, Wye, 1929, pp. 165 and 167, where a case of a forty-acre field of King Edward is recorded, and three instances are given where the fungus was causing damage in association with the eelworm Heterodera Schachtii.

In the more important literature on this disease, Dickson (Canada) describes the result of planting "seed" Potato tubers infected with numerous sclerotia of Colletotrichum atramentarium in experimental plots out-of-doors.

Concerning the plants, he states, "The plants grew poorly ; they were stunted and weak, and showed all the symptoms of dartrose. By September 18, the tops were dead, while adjoining rows were full of green tops."

A partial repetition of the experiment is included among some pot experiments at Kirton, Lincolnshire, and a progress report on the 1929 results may be of interest, since Colletotrichum atramentarium, on the strength of Dickson's description of this stunted and weak growth, is rapidly becoming included in the discussions upon "Potato sickness."

Seven earthenware flower pots (ten inch) of autoclaved soil were prepared and planted with King Edward tubers on May 1. No manure was applied. Series A, consisting of four pots, were planted with King Edward tubers infected with sclerotia of Colletotrichum atramentarium. Series B. (control) consisting of three pots, were planted with healthy tubers.

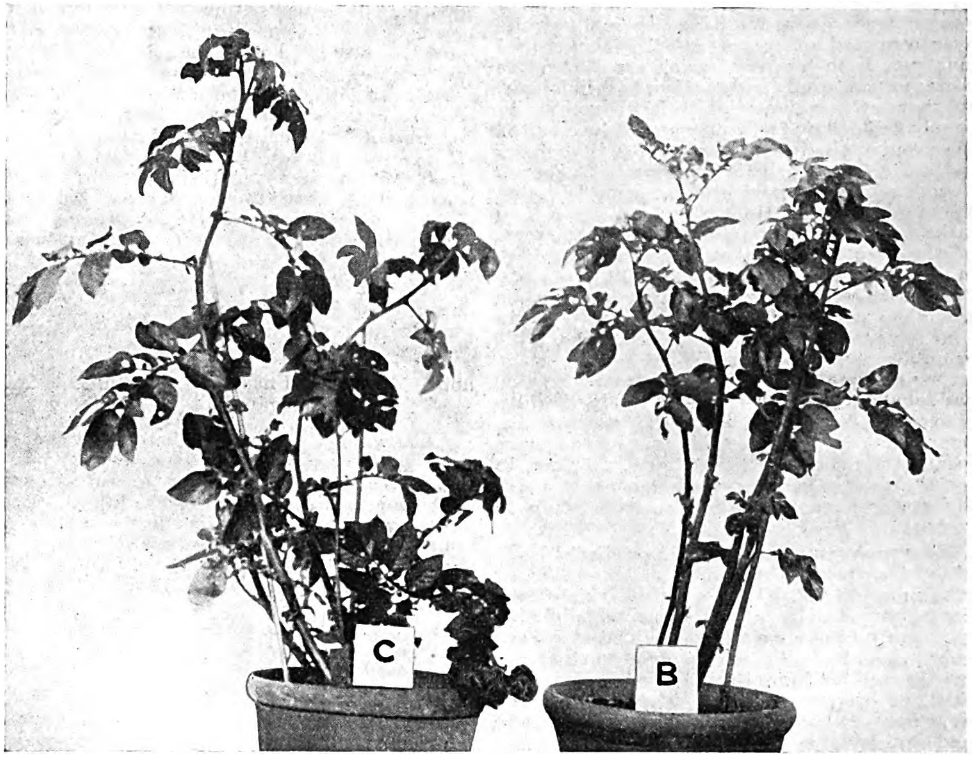

FIG. 229.—BLACK DOT DISEASE OF POTATOS.

C (Series B), healthy seed sets ; B (Series A), seed sets infected with Colletotrichum atramentarium. Photographed on August 14.

The plants, except for occasional waterings, were kept under outdoor conditions ; low temperature was experienced in the early part of the season.

The growth made by Series A was absolutely normal, and compared with Series B there were no signs of weakness or stunted appearance (Fig. 229 ; photograph taken August 14). At the commencement of the third week of August, although the plants must have been suffering by their abnormal pot conditions, the haulm was perfectly green. One plant of Series A was lifted, and it was possible to retrieve the old "set" for examination. Colletotrichum atramentarium was abundant on the skin and the black sclerotial bodies were also present in the decaying mush. Any doubt was dispelled that the fungus on the "seed" tubers had failed to grow.

The sclerotial bodies were observed on one or two dying stems of Series A by August 28, but the pot conditions caused Series B (control) to die down with equal rapidity, and for that reason further records of the effect of the disease could not be taken.

The preliminary experiment showed that weak and stunted plants such as were observed by Dickson under Canadian field conditions were not produced by growing King Edward seed Potatos infected with Colletotrichum atramentarium in sterilised soil, under the outdoor conditions of Lincolnshire in 1929.

I am much indebted to Dr. Pethybridge for the loan of literature. *W. F. Cheal, Kirton Agricultural Institute.*

THE TRAGEDY OF HARD PRUNING.

IN private gardens in this country, both large and small, there are hundreds of Apple trees which bear testimony to what may be described as the abuse rather than the judicious use of the pruning knife. Every year these trees produce a crop of young shoots along the main branches; these are promptly cut off in the annual pruning operation, only, of course, to produce another crop which in turn is treated in the same way as the last, and so the process continues until the particular operator comes to the end of his career and someone else takes the work in hand. It may be observed that this excessively hard cutting, often referred to as spur-pruning, is confined to private gardens—the commercial fruit grower knows better—and its origin may possibly be traced to the old custom, which still prevails, of planting bush Apples in vegetable gardens alongside the walks, on the understanding that they must not be allowed to extend over the walk on the one side and the ground required for vegetable culture on the other. I am willing to admit that by skilful management in the matter of periodical lifting or root-pruning a tree may be kept within certain limits if desired, but this can never be done by spurring back the young shoots every year and doing nothing more.

I have in mind at the moment a garden in which there is a number of trees which have been treated in this well-known manner for more years than I can remember. The pruning has been done every year by the same man, who in the first place helped another to do it, and has gone on ever since taking off the annual crop of young shoots and waiting for another crop to grow before repeating the process. This individual, by the way, has the reputation of being an expert pruner, and in his spare time he undertakes to prune the trees of amateur fruit growers round about, which, needless to state, he treats in the same way. I venture to state there are hundreds of these orthodox pruners in the country. They probably acquired this habit of cutting when doing or seeing it done as boys or young men, and having accepted it as gospel, they have adhered to it ever since without ever asking themselves why they do it, or what would happen if they allowed the tree to grow more as nature obviously intended it should ? If this rule of thumb habit of pruning were good—and after all it is little more than a habit—it is not unreasonable to ask why the commercial grower does not adopt it, who has to get his living out of his fruits. The only answer is that these annually hard-pruned garden trees do not produce so many fruits over a period of years as the commercial man gets from his trees which are allowed to grow more naturally and at a less cost in labour. In short, the commercial fruit grower would simply be heading for bankruptcy if he adopted the same method of pruning which is common in hundreds of private gardens. Of course, these hard-pruned trees produce some fruits on the spurs along the branches, and every year they make a dumb appeal to the pruner to leave some of the young wood they have made, which in due course would produce fruit buds and Apples, but no, that would be upsetting a system which has become little else but force of habit. This force, too, has become so strong that little or no discrimination is made between varieties, strong-growers and weakly growers are treated the same, as also are those the habit of which is to produce fruit buds at the ends of the young shoots. In fact, it is not too much to state that the pruning knife, as used in many private gardens, is a means of reducing rather than increasing the crops of fruits grown.

For some years past, I have been in the habit of regularly passing two villa gardens containing a number of bush Apple trees which were annually pruned by the same old jobbing gardener by the only method he had ever been taught, and he had never troubled to think the matter out for himself. The trees were mere thickets of young shoots when he started, they were skeletons of main branches when he had finished, and the young twigs strewn thickly on the ground came in handy for flower stakes. Then the house to which one of the gardens belonged became vacant and remained unoccupied for a considerable time, which meant that the trees were not pruned, but just left to grow. As a matter of fact they have never been pruned since, beyond removing some of the over- crowded branches, but this is the point, they have produced far more Apples than the trees in the other garden which have been treated religiously to the same annual cropping of the young shoots by the old gardener.

After all, the business of an Apple tree is to produce fruits, and commercial fruit growers have proved beyond question that the way to make a profit is to shape the tree in its early years and then let it grow very much as nature intended it should. Surely this should be the test—the yield of the tree and the cost of production in relation to labour. I am disposed to emphasise the latter consideration when I think of the hours and hours that are spent every year in snipping off the crop of young shoots from fruit trees, which is commonly called spur pruning. For years it was an accepted orthodox process, which may be the main reason for its survival ; old fruit growers defended it, old books describe it in details which are almost bewildering, and it was not until the commercial grower came along with his living to get out of fruits that a more rational use of the pruning knife came into vogue. It may be claimed, I think, that the commercial method of training and pruning trees is equally adapted to private garden culture, provided that when the trees are planted they are given room to grow and develop. *G. H. H.*

VEGETABLE GARDEN.

SALSIFY AND SCORZONERA.

ALTHOUGH only occasionally met with in gardens now, where a variety of produce is appreciated and desirable, Salsify and Scorzonera may advantageously be included in a comprehensive collection of vegetables and esculents, coming into season as they do at a time when a change of vegetables taxes the resources of the grower. The cultural requirements of both are so limited that no gardener need be deterred from giving them at least a trial.

I am of the opinion that, in common with other lesser-known occupants of the vegetable quarters, it is not so much a question of the gardener's skill to produce them as a test of the cook's ability to prepare the dishes in such a way as to bring out all the good qualities of the particular subject. It has been the writer's own personal experience that, after bringing to perfection such delicacies as Aubergines and Maize—to mention but two—the results of such labour was nullified by the inability of the kitchen staff to prepare the dishes for the table. All this is in passing, but I make bold to assert that it is the unfortunate experience of a goodly number of colleagues.

I propose to treat of Salsify (Tragopogon porrifolius) and Scorzonera (S. hispanica) together, as although they belong to different genera—albeit of the same Natural Order (Compositae)—the cultural requirements, and to a more or less degree the culinary process, are sufficiently identical to allow of this.

Neither of them is fastidious as to soil, and any good, deeply cultivated medium should be found suitable. There is no necessity to apply a dressing of manure if the crops follow one that was generously treated in this respect the previous season for, in common with the majority of root-producing vegetables, Salsify and Scorzonera fail to produce the clean, straight " thongs " (so desirable in esculents of this type) when allowed to come into contact with freshly-applied manure. Should the ground be at all poor it should be trenched deeply, incorporating suitable manure with the bottom spit only.

Seeds of both subjects may be sown any time during April or May, either at one sowing, or on two or three different dates for succession, although one sowing is usually sufficient for an average establishment. Draw drills fifteen inches apart and one inch deep, and sow the seeds thinly. I personally prefer the system sometimes advocated for Parsnips, Beet, etc., of placing three or four seeds the correct distance apart in the rows, in this case nine inches to one foot—the latter distance for Scorzonera—as a great saving both in seeds and labour is thus effected.

Thin the seedlings to one per station so early as practicable, for it will be found most difficult to effectually pull out the seedlings not required if they are allowed to remain too long, particularly with Salsify.

The routine treatment merely consists of a frequent use of the hoe to keep down weeds, taking care not to delve too deeply near the roots, or forked roots may result.

The roots should be of sufficient size to be available for the table early in November and may be lifted as required, although should severe weather conditions prevail, sufficient of the crop should be secured for immediate use, and it might be considered advisable to lift the whole after the turn of the year, storing them in sand and dry ashes in any cool shed or cellar. The roots should be inspected periodically and have all the young growths rubbed off. *T. Wilson.*

SOCIETIES.

SMITHFIELD CLUB.

EVER since it was instituted one-hundred-and-thirty years ago, the Annual Show of the Smithfield Club has stood for the best livestock the world can produce. It has been contended that the British farmer is the most conservative of men, who believes that what served his grandfather is the best for him. Like so many accepted sayings, this, of course, has no foundation in fact, and is a libel. No one who has visited the Smithfield Club Show over so long a period as we have could fail to be impressed by the changes that have taken place with all and nearly everything connected with our premier industry. Not only was this fully evident in the really wonderful machinery which is now part and parcel of the modern farm, but in the very beasts themselves that were shown in the Agricultural Hall, Islington, during the past week the change is fully evident. True, there was one Devon steer which with another hundredweight of solid flesh would have scaled a ton, but this was an exception, and no longer is to be seen the many ponderous fatted cattle of yester year. Such are no longer profitable, so the farmer breeds and feeds the animal which will provide the " baby beef," which the consumer demands.

Once again the show lacked the genial presence of our King, who was wont to visit the show and inspect the cattle, sheep and pigs with knowledge and understanding. But, happily, there was no untoward reason this year and all were able to rejoice in His Majesty's many successes at the show with unmixed feelings.

But, while we enjoyed more than a passing interest in the prize-winners, and others not so fortunate, our real business was in the gallery, for there were the exhibits of many of our most important seedsmen. While these, for the most part, are of the agricultural crops which form an exceedingly important branch, yet the exhibitors were not unmindful of the garden, which is a necessary adjunct of the farm.

In their accustomed place, Messrs. SUTTON AND SONS set out their expected display of gargantuan roots of such perfect shape that they might well have been moulded. But fine as were these perfect specimens of Mangolds, Turnips and Swedes, they gave pride of place to the immense Drumhead Cabbages, each of which were literally the size of an infantry big drum. Although so immense, these Cabbages, of the type known to the older school as Flatpoll, were perfect in their spherical shape, and were as firm as it is possible for a Cabbage to be. But these are of value to the farmer, while for the garden there were seasonable, and almost out-of-season vegetables of superb quality. Of the latter may be mentioned Tomatos Best of All, Every-Day, Golden Perfection and Golden Queen, and Mushrooms. Brussels Sprouts were represented by the large buttons of the variety Fillbasket. In sharp contrast to the Kohl Rabi which is grown as a farm crop, were the delicate samples of Sutton's Earliest White and Earliest Purple, which had an exceedingly tempting appearance. Among the excellent roots were Sutton's Favourite Intermediate Carrot, Globe Beet and Parsnips of the desired medium size and perfect shape, while there were selections of Onions and milk-white heads of Autumn Protecting Broccoli. Potatos which are even more important at this than at most shows, were represented by such sorts as British Queen, Arran Comrade, White City and Snowdrop.

For several years past, Messrs. E. W. KING AND CO. have shown a very desirable Beet in their New Intermediate, and also Dark Red Beet. Other vegetables of merit were Perfection Brussels Sprout, Greentop Stone Turnip, Offenham Parsnip and White Spanish Onion. Their best Potatos were The Bishop, Red King, Arran Comrade and Majestic. Messrs. JOHN K. KING AND SONS set out many good Potatos, Onions, Brussels Sprouts, Carrots, Turnips, and other vegetables, all in grand condition.

Associated with the superb Mangolds and cattle Turnips so imposingly arranged by Messrs. JAMES CARTER AND Co. were the long, fleshy stems of Marrow Kale, which rivalled the Jersey Kale in length, but far surpassed it in food value. Their Monster Drumhead Cabbages were monsters indeed of the Cabbage world. Chief among their garden vegetables were Carter's Autumn Protecting Broccoli in large heads of perfect whiteness; Holborn Leeks of the best exhibition size and form; Goliath Brussels Sprouts nearly as large as baby Cabbages; Maltese Parsnips and Standard Bearer Celery. Among the many good Potatos were dishes of Majestic, White Arran Victory, Eclipse, Catriona, Mr. Bresse, Di Vernon and Arran Victory.

The samples of Marrowfat Parsnip on the stand of Messrs. E. WEBB AND SONS betokened an excellent strain of this root, while their round-shaped Reliance Beet was also admirable. Well-grown Primula sinensis graced the stand which, on the agricultural side, included particularly good roots of Sugar Beet Southampton Champion. James's Longkeeping and Cranston's Excelsior Onions. Onions were very prominent on the stand of Messrs. TOOGOOD AND SONS, who also showed Crimson Beet, an attractive globe-shaped variety. Their vegetables were attractively "garnished" with boxes of fresh, green seedling Grasses.

Messrs. BLATCHFORD, LTD., had good selections of agricultural vegetables, and particularly good Brussels Sprouts. Mr. HERBERT J. SPEED set out good sticks of Celery, Brussels Sprouts, Carrots and Beet. Messrs. GARTONS had very attractive herbarium specimens of their pedigree Wheats and a number of very good transparencies of scenes in their grounds. Mr. HERBERT PARKER showed interesting and instructive herbarium specimens of various Grasses.

The little pyramids of Forex Brussels Sprouts on the stand of Messrs. HARRISON AND SONS drew attention to the merits of this variety. They also set out samples of Early Market Carrot, Leicester Pink Celery, Ailsa Craig Onions, heads of excellent Broccoli and many dishes of splendid tubers of the best varieties of Potato.

Fruits rarely assume any great importance at the Smithfield Club Show, and the present occasion was no exception to the rule, although Messrs. SEABROOK AND SONS showed splendid boxes of such Apples as Cox's Orange Pippin, Worcester Pearmain, Monarch, Bramley's Seedling, King of the Pippins and Newton Wonder, and also had sample young trees of various Apples, Pears, Plums, Damsons and Currants. Messrs. DICKSONS showed admirable dishes of various Apples, including the varieties Sandringham, Lane's Prince Albert, Cox's Orange Pippin, A. W. Barnes and Charles Ross. Mr. T. A. SCARLETT again showed sturdy three-year-old bushes of his Edwina Black Currant and excellent dishes of various Potatos.

As might be expected, Potatos are always an important feature of the exhibits in the gallery, and a great many varieties are shown. Messrs. FIDLER filled their customary place with an extensive collection which included the varieties Duke of York, Arran Chief, King Edward VII, Majestic, Mein's Early, Factor and Arran Banner. Other exhibitors of seed Potatos were Messrs. GUNN AND SONS, Messrs. JOHN MACKENZIE AND Co., Messrs. PATULLO, HIGGS AND Co., LTD., Messrs. JAMES GARDINER, Messrs. KENT AND BRYDON, LTD., Mr. W. J. REID, Messrs. WOTHERSPOON, DONALD AND GEORGE GRAHAM, Mr. R. W. GREEN, Mr. WILLIAM ROBERTSON, Mr. THOMAS McCLUNG, Mr. JOHN A. GRANT, Messrs. W. DENNIS AND SONS, Messrs. S. THOMPSON AND SONS, Mr. W. J. CAMPBELL, Messrs. W. AND R. GRAHAM, LTD., Mr. FRED MARSHALL, Mr. JAMES GRAY, Messrs. R. AND S. PATON, LTD., Mr. ISAAC POAD, Messrs. ROBERT MORRISH AND SONS, Mr. GEORGE WHITE, Messrs. THYNE AND SON, and Messrs. J. E. ENGLAND AND SONS. The MINISTRY OF AGRICULTURE OF NORTHERN IRELAND had a special stand, where they set out a few dishes of seed Potatos, and the names of certified growers of immune varieties.

HITCHIN CHRYSANTHEMUM.

THE exhibition of this Society, held in mid-November, was particularly successful but, unfortunately, the Town Hall does not provide sufficient space for the proper arrangement and display of the many fine exhibits staged by numerous clever and enthusiastic competitors. Sir C. Nall Cain is the President, and Mr. T. Pateman the Chairman of Committee, while Mr. W. G. P. Clark, the veteran amateur exhibitor, continues to act as Secretary, but is now assisted by Mr. J. G. Rusted.

About eighty classes were provided. In the cut flower division, chief interest centres in the class for six vases of Japanese varieties, three blooms of each variety, and here the principal award is a Challenge Cup valued at twenty guineas. On this occasion there was a distinct falling off in the competition, but not in the quality of the blooms, for Mr. B. FRANKLIN, Chesfield, Stevenage, won the Cup with splendid examples of Louisa Pockett, Birmingham, Majestic, Yellow Majestic, T. W. Pockett and Red Majestic. In the succeeding class, for four varieties, Japanese, three blooms of each, a smaller Silver Challenge Cup accompanies the premier award, and this was won by Major W. SHERIFF, Essex Road, Stevenage, who staged Yellow Majestic, T. W. Pockett, Majestic and Red Majestic; second, REGINALD ALASMIR, Esq. (gr. Mr. C. Wren), Woodlands, Hertford.

The best half-dozen Japanese blooms, distinct varieties, in vases, were shown by Mr. FRANKLIN, whose best flowers were of T. W. Pockett, Charles Davis, Princess Mary and Majestic; second, E. MARTIN SMITH, Esq. (gr. Mr. J. J. Mills), Codicote Lodge, Welwyn.

Single varieties were very well shown and the competition was very keen. For six vases, E. MARTIN SMITH, Esq., led, with Juno, Red Molly, M. J. Harris, Mrs. Palmer, R. Collins and Rose Molly; second, F. RANSOM, Esq.; third, Major J. F. HARRISON.

Dr. W. P. GRELLET showed the best four vases of Single Chrysanthemums, and his varieties were Juno, Lady Astor, Molly Godfrey and Catriona; second, W. G. WILLMOTT, Esq.; third, H. R. GRELLET, Esq. W. G. WILLMOTT, Esq., showed the best vase of Single Chrysanthemums in a close competition.

For six vases of Decorative Chrysanthemums, F. RANSOM, Esq. (gr. Mr. W. Robins), Newlands, Hitchin, led, with a capital display of George Carpenter, Edward French, Cranfordia, Lady Brunton, Rayonnante and Snowstorm; second, LADY WHITEHEAD.

The best three white Japanese blooms, one variety, were shown by Mr. FRANKLIN, who had grand flowers of Louisa Pockett; second, LADY WHITEHEAD, with Victory; third, E. MARTIN SMITH, Esq., with Nina Brown. LADY WHITEHEAD led for three blooms of a coloured variety, with Mrs. B. Carpenter; second, E. MARTIN SMITH, Esq., with Yellow Majestic.

The exhibits in the class for a vase of large Japanese blooms, arranged for effect, were not of the best, but possibly they had to be moved several times to provide extra space for other things and thus became somewhat disarranged. R. ABEL SMITH, Esq., won the first prize with yellow, white and pink flowers; second, LADY WHITEHEAD; third, R. W. OLDHAM, Esq. (gr. Mr. S. Kellaway), Carey Friars, Hitchin.

The best group of Chrysanthemums was a handsome arrangement set up by Messrs. ABBOTT BROS., Hitchin, but Mr. RALPH CANNON, who won second prize, also had a fine exhibit.

In the class for a table of cut Chrysanthemums, to represent not fewer than four of the sections of the flower there were several exhibits that were somewhat spoiled by overcrowding and rendered comparatively ineffective because they were unavoidably placed too closely together. LADY WHITEHEAD was awarded the first prize, and E. MARTIN SMITH, Esq., the second.

Major J. F. HARRISON (gr. Mr. A. J. Hartless), Kings Walden, Bury, led for perpetual-flowering Carnations, followed by LADY WHITEHEAD.

Plants were good. LADY WHITEHEAD led for three plants in flower, with Gesneras, followed in order by J. HOWARD EASTON, Esq., with Salvias, and Major HARRISON, with Gesneras. F. RANSOM, Esq., showed the best Cyclamens; LADY WHITEHEAD the best Begonia Gloire de Lorraine, and also the best large-flowered, winter-blooming Begonias.

VISCOUNT HAMPDEN (gr. Mr. Gillings), The Hoo, Whitewell, secured the premier award and Silver Challenge Cup for a collection of fruits arranged on a space six feet by three feet, and did so with an attractive exhibit o Alicante Grapes, Charles Ernest and Pitmaston Duchess Pears, and Allington Pippin, Cox's Orange Pippin, King of the Pippins, Brownlee's Russet, Lane's Prince Albert and Bramley's Seedling Apples. Second prize was won by Mrs. CARL HOLMES (gr. Mr. W. J. Penton), The Node, Welwyn.

All the fruit classes were well filled, and the Apples showed high colouring. VISCOUNT HAMPDEN had the best set of three dishes each of dessert and culinary Apples, showing Cox's Orange Pippin, Allington Pippin, Monarch, Newton Wonder, Gloria Mundi and Hoary Morning; second, C. W. GURNEY, Esq. (gr. Mr. E. Burbridge), Henlow Grange; third, Major HARRISON. Mrs. CARL HOLMES and Major HARRISON were first and second, respectively, for three dishes of culinary Apples.

In the single dish classes for Apples, Messrs. W. J. SIMPSON, W. F. CARMION, M. PETTINGELL, and J. G. RUSTED were particularly successful prize-winners.

Vegetables are always shown well at Hitchin. In Messrs. J. Carter and Sons' class for a collection, the prizes were won in order of mention by LADY WHITEHEAD (gr. Mr. C. Carter); Major HARRISON and Mrs. CARL HOLMES. In the open class for six kinds, W. J. EMPSON, Esq., Gamlingay, led, and M. A. GRIMES, Esq., Harlow, came second. In Messrs. Sutton and Sons' class, Major HARRISON was placed first and LADY WHITEHEAD second.

Other leading prize-winners in the vegetable classes were J. HOWARD CARTER, Esq., and E. MARTIN SMITH, Esq.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE last meeting of the old year was held in the R.H.S. Hall on Monday, December 9, Mr. Charles H. Curtis presiding. Before commencing the business, the Chairman regretted he had to report the tragic death of their late colleague, Mr. W. Wesker, and moved that a vote of condolence be passed; this was carried by the members standing in silence.

Four new members were elected. Four members withdrew interest from their deposit accounts amounting to £13 8s. 2d. and two members over seventy years of age withdrew £63 16s. 7d. from their deposit accounts. The sum of £128 14s. 4d. was passed for payment to the nominees of two deceased members. The sick pay on the Ordinary Side amounted to £122 7s. 0d.; Distress Fund, £19 10s. 0d.; State Section Sick Pay, £94 12s. 8d.; Maternity Benefits, £5. The sum of £36 11s. 0d. was paid in grants to State Insured members, for dental and optical treatment, and twelve other cases were considered.

WIMBLEDON GARDENERS'.

A MEETING of the above Society took place at The Queen's Hall, Wimbledon, on December 4; Mr. A. Hosking presided, and the lecturer was Mr. P. E. Cross, of the John Innes Horticultural Institution, whose subject was "Greenhouse Plants."

Mr. Cross spoke of Victorian times, when glasshouses were filled with hard-wooded plants, and traced the changes that have taken place up to the present day, when soft-wooded plants are the vogue. He gave a detailed list of suitable plants for greenhouse culture and ample information as to their treatment. Mr. Cross has had considerable experience in greenhouse work, and his paper was very much appreciated by the many experts present.

Mr. Hosking congratulated Mr. Cross on his fine lecture, and a vote of thanks was accorded him.

Mr. E. **Abraham** exhibited a magnificently-grown Chrysanthemum plant, for which he was awarded a Certificate of Merit.

NATIONAL CHRYSANTHEMUM.

At the meeting of this Society's Floral Committee, held at the R.H.S. Hall, on Monday, December 16, a few novelties were forthcoming, but these few were so good that no fewer than five found favour in the eyes of the adjudicators.

Balcombe Sunray. *II.* 1*b*.—A medium-sized Decorative and market variety; the flowers are borne on long, slender, but wiry stems; golden-amber. Shown by Mr. A. G. **Vinten**, Balcombe.

Bébé Gerard. *II.* 1*b*.—This is a large Decorative variety, flattish, and with broad florets; clear lilac-pink of a very pleasing shade. A fine late variety.

Joan Higgs. *I.* 1.—A pure white Incurved variety of fine substance and good size; stem and foliage excellent. A sport from Autocrat.

Thanksgiving Pink. *II.* 1*b*.—An American variety with rounded firm blooms of rich rose-pink colour.

Lyonesse. *II.* 1*b*.—An elegant Decorative variety, but a trifle thin as shown. The official colour description is Indian-red; we consider it deep rich bronze heavily flushed with red. These last four varieties were shown by Messrs. **Keith Luxford and Co.**

ROYAL HORTICULTURAL.

The following awards have been made to the undermentioned vegetables by the Council of the Royal Horticultural Society, after trial at Wisley.

Long Beet.

Awards of Merit.

(3 and 4) *Cheltenham*, sent by Messrs. **Watkins and Simpson**, and Messrs. **Nutting**; (40) *Non-Bleeding*, by Messrs. **Zwaan and van der Molen**; (66) *Exhibition Brydon's*), by Messrs. **Hurst**; and (73 and 74) *Dell's Crimson*, sent by Messrs. **Barr and Sons** and Messrs. **Nutting**.

Highly Commended.

(7) Cheltenham Selected, sent by Messrs. **Cooper Taber and Co.**; (9, 10 to 14) Cheltenham Green-top, by Messrs. **Morris**, Messrs. **Finney**, Messrs. **Clucas**, Messrs. **James Carter and Co.**, Messrs. **Dobbie and Co., Ltd.**, and Messrs. **Zwaan and van der Molen**; (17) Cheltenham Greenleaf, by Messrs. **Harrison**; (18) Greentop Selected, by Messrs. **Dobbie and Co., Ltd.**; and (20) Greentop, sent by Messrs. **Sutton and Sons** (all alike). (15) Cheltenham Greentop, sent by Messrs. **Zwaan and de Wiljes**; (19) Greentop, by Messrs. **E. Webb and Sons**, and (21) Amsterdam Market, sent by Messrs. **Zwaan and van der Molen** (alike). (25) Northumberland Dwarf, sent by Messrs. **Nutting**; (75) Victoria, by Messrs. **Harrison**; and (26) Covent Garden, by Messrs. **Barr and Sons** (alike). (42) Non-Bleeding, sent by Messrs. **W. H. Simpson**. (45) Blood Red, sent by Messrs. **James Carter and Co.** (50) Exhibition (Veitch's), sent by Messrs. **R. Veitch and Son**, and (53) Dark Red Salad, sent by Messrs. **Daniels Bros.** (alike). (59 and 60) Purple (Dobbie's), sent by Messrs. **Dobbie and Co., Ltd.**, and Messrs. **Morris**. (63) Volunteer, sent by Messrs. **E. Webb and Son**; (64) Exhibition Black, by Messrs. **Stuart and Mein**, and (65) Black, sent by Messrs. **Sutton and Sons** (alike). (71) sent as Pragnell's Exhibition, by Messrs. **Hurst**.

NATIONAL CARNATION AND PICOTEE.

The above Society held its fifty-first Annual General Meeting at the new R.H.S. Hall, London, S.W.1, on Saturday, December 14, when there was a good attendance of members. The Council's 1929 Report (for nine months, as the Society's year now ends on September 30 instead of December 31) showed that the Society was in a flourishing condition and that the period under review had been very successful, with an addition of fifty members and affiliated societies, and a balance in hand of £70 as against £50 for the previous twelve months. The fifty-second annual exhibition held on July 18 and 19, in conjunction with the British Carnation Society was most successful and, notwithstanding the adverse weather conditions prevailing at the time, and last minute cancellations of entries, the space filled was much larger than on the initial joint occasion. The Society's thanks were accorded to the Hon. Secretary of the B.C.S., also to the R.H.S. officials for their whole-hearted co-operation.

It was intimated that another combined exhibition will be held in the old R.H.S. Hall, on July 15 and 16, 1930. The Hon. Secretary reported the gifts of three additional trophies for 1930:—The Lady Hudson Cup (open) for Clove-scented Carnations; the Abol Cup (open), to be won outright for twelve vases consisting of three Border Carnations, Clove-scented Carnations, Picotees and Pinks (any section), respectively, distinct varieties, three blooms or stems of each; and the Julia B. Wells Trophy to be won outright (amateurs only), for Picotees. It was intimated that the Society's publication, to be known in future as *The Carnation Annual*, would be issued in the New Year and would be a great improvement on previous issues and a book well worthy of the Society. At future exhibitions the Society's special medal will be awarded to all winners of cups.

The retiring President, Mr. Edmund Charrington, was unanimously re-elected, with the best thanks of all for his continued support and generosity. The following were elected on the Council for three years:—Messrs. T. J. Child (Catford), S. H. Gregg (Bowes Park), A. S. Hampton (Reading), H. A. Knapton (Orpington), A. E. Mustow (Worcester Park), and F. W. Seymour (Finchley). The Hon. Secretary, Mr. A. E. Amos, Hon. Assistant Secretary, Miss J. B. Wells, and the Hon. Treasurer, Captain E. M. Wilkinson, were unanimously re-elected with appreciatory thanks for past services. The new post of Hon. Show Superintendent was filled by Mr. T. J. Child (London), and Messrs. Howard, Morris and Crocker, of Portsmouth, were elected Hon. Auditors, while a hearty vote of thanks was accorded the retiring auditors, Messrs. Burnett, Burnett and Swayne, of Southampton.

GUILDFORD AND DISTRICT GARDENERS'.

The lecture on Tuesday, December 10, delivered by Mr. J. Coutts, Assistant Curator of Kew Gardens, was listened to by a large Company, many of whom had come a considerable distance and several members not ordinarily seen at meetings were attracted, probably as much by the standing of the lecturer as by his subject, "Rock Gardens"—which Mr. Coutts said was one of growing popularity and interest. In an attractive way the advantages of rock plants were set forth. A great many of the plants under consideration could be grown in a small space and quite a number of them on level ground, and while many were grown in conditions unlike their natural habitat, they were amenable to cultivation and would do well.

In making a rock garden a deep root-run is essential, for while a plant may only be a few inches high the roots extend considerably, some of them to two or even three feet. Sharp drainage is another necessary requisite; water must be moving, stagnant water being fatal. The site should be open and not surrounded by trees, and no bricks or clinkers allowed in the construction.

It was surprising the number of plants that could be grown in and around London. In arranging a garden the gardener should keep in mind the kind of plants he wants to grow. Considerable details were given as to methods of constructing rock gardens and the use that could be made of moraines, and suggestions made as to the plants to grow, especially Saxifraga, Campanula, Anemone, Dianthus and Primula. Stocks might be replenished by the aid of a few cold frames. The lecture was amplified by a number of lantern slides showing rock gardens in course of construction, and prize-winning exhibits at Shrewsbury and Southport Shows, together with a number of slides showing many plants thriving in the Botanical Gardens at Edinburgh, where some alpines which do not thrive at Kew can be grown successfully.

Other interesting points were brought out by questions raised by Mr. Joy, of Snowdenham; Mr. Turner, Albury Park; Mr. Blandford and Miss Twinn, West Horsley.

A vote of thanks was passed on the proposition of Mr. Blunden, seconded by Mr. Westlake, both of whom said they had enjoyed the lecture and profited by it.

Mr. Patrick, who presided, announced that the next meeting night, Tuesday, January 7, would be devoted to demonstrations by members of the Association—Mrs. Hammond, of Horsley, on "Table Decorations"; Mr. Newman, Tangley Place, on "Pruning Small Fruit Trees," and Mr. Joy, Snowdenham, on "Root-pruning."

ANSWERS TO CORRESPONDENTS.

A Variegated Phlox.—*T. L.* If your Phlox is of semi-decumbent growth, it is probably Phlox amoena var. variegata.

Early-flowering Chrysanthemums.—*Correction*.—In my epitome of the trial of early-flowering Chrysanthemums under the auspices of the National Chrysanthemum Society, at Cookham (see page 389), I inadvertently stated that "Hollicot Yellow" was synonymus with "Cranfordia." I should have stated with "Goldfinder"—the name it is often catalogued under: Hollicot Yellow is its proper name. This variety received three marks on September 24, last. *D. B. C.*

Finger and Toe Disease in the Garden.—*Digger*. Soils in which the above disease (Plasmodiophora brassicae) is prevalent are acid or sour owing to long-continued manuring and a deficiency of lime. The plan you propose to take is right. Ordinary quicklime is the best form to use after it is slaked. Slake it in a shed or under cover to prevent it becoming too wet by rain. It is easiest to spread equally in powder form. If the soil is light, a quarter-of-a-pound to the square yard would be enough, to avoid wastage of the humus; if it is heavy, half-a-pound to the square yard would not be harmful. In about a fortnight after application, the lime will have lost its caustic nature and become carbonate of lime or chalk again and it will be safe to sow or plant. The lime will take two or three years to have full effect in rectifying the sour soil, therefore a fresh application may be given in the fourth year.

Names of Plants.—*C. W. S.* The Rhododendron is R. Nobleanum (R. arboreum × R. caucasicum), a hybrid that usually commences to flower in December and continues, weather permitting, until March.—*B. H. C.* 1, Pelargonium ionidiflorum; 2, Mesembryanthemum violaceum; 3, Ruellia Portellae; 4, Polygoneum capitatum; 5, Pteris cretica var. Alexandrae; 6, Selaginella Braunii; 7, S. Emiliana; 8, Pteris longifolia; 9, Adiantum cuneatum var.; 10, A. Weigandii; 11, A. cuneatum var. grandiceps; 12, A. Capillus-veneris; 13, A. cuneatum var. gracillimum; 14 and 15, forms of A. cuneatum.

Shrubs for an East Exposure.—*R. G.* Plant a group of five plants of the new hybrid Berberises that are free-fruiting, *i.e.*, B. Comet, B. Sparkler, B. rubrostilla, etc.; and a group of five plants of Viburnum plicatum, or of the new purple-flowered Brooms, such as Cytisus Dorothy Walpole, C. Dallimorei and C. Donard Seedling.

Communications Received.—A. G.—F. K. W.—S. C.—S. W.—G. C. J.—J. Y.—G. C.—W. T. S.

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Supplement Plate.

Ramondia serbica var. Nathaliae.

Average Mean Temperature for the ensuing week deduced from observations during the past fifty years at Greenwich, 38·7°.

The Scent of Flowers.

With the pitiless December rains experienced lately, which make outdoor gardening impossible, what is there more pleasant than to read about the garden. Next to the catalogue, which is the true gardener's favourite study, descriptions of gardens give, perhaps, the most solace; who, for example, could not spend a pleasant hour and discover troops of awakened memories in reading or re-reading Dr. F. A. Hampton's charming paper on "The Scent of Flowers."* Most freakish of all the senses, smell is at once potent and elusive. The man of science who has much to tell us on all such subjects, imputes this freakishness to the variable state of degeneracy of the olfactory tract of our brains—and, of course, to our regular and liberal use of Tobacco. Let it be conceded that our sense of smell is not of the acutest—a mere nothing compared with that possessed by the dog, who puts up the intrusive rabbit at our feet and pursues its track unerringly and unsuccessfully across all our best flower beds. Nevertheless, although we may not possess—for better or for worse—the sharpness of scent of the hunting animal, it is sufficiently developed in most of us to make the well-planted garden a source of almost as much pleasure to our noses as it is to our eyes. For the odours of the garden come to welcome us—heralds of the pomp and glory of the summer day. So it is interesting to learn that we owe, perhaps, most of the fine and soft odours of the garden to the conspiracy which moths and flowers entered into long ages ago. There are flowers that smell unpleasantly and look no less unpleasant—these, the Stapelias and Privets and others, are in league with flies. To attract these creatures the flowers must needs acquire a carrion odour. Let us pass these by with averted noses. Then there are the multitudes of bright flowers, masses of colour which in like manner lay themselves out to captivate the bee so that by incessant visiting pollen shall be brought from one flower to the stigma of another of like kind. The bee, like most very busy people, is not very gifted. Its sense of colour is but partial, and hence it needs a lot to attract its notice. The bee's sense of smell is about as good as the average human being's, and is undoubtedly helpful in guiding it to the honey-scented Clovers and Limes and Gorse, and even as Dr. Hampton avers, to the deeply spice-scented Broad Bean and the delicately fragrant Sweet Pea. It is, however, among the flowers which made that old compact whereby moths should be the bearers of floral fertility that the exquisite odours of the garden are to be found. The moths, and in particular those that fly by night, have need of strong odours to guide them, lest they miss one another in the darkness and so become extinct. And so, hovering, they wave plumes like fans, in courtship, diffuse sweet odours as though "a box of essences were broken in the air." These odours which the night-flying moths scatter are like unto the odours of Jasmine, Honeysuckle, Musk, Vanilla and all those wonderful scents of the strikingly odoriferous flowers. So that—though heaven forbid—it would appear that the flowers with these exquisite scents have produced them to lure the moths away from their own love trysts to the cognate affairs of the flowers themselves. We shall imagine the joyous confusion of these night-flying moths when they discover on balmy evenings that the odours which whisper to them of love are everywhere. The cynical, who spoil everything, might aver that in this strange world of the night-flying moths and the night-blooming flower the *menage a trois* first "saw the light." Beside this splendid group of exquisitely scented flowers, there are other smaller and scarcely less interesting groups. Thus the flowers of Calycanthus floridus, brown in colour and suggestive of decaying fruit, attract the wasp, no doubt for that reason. It would be possible to linger much longer with pleasure and profit over Dr. Hampton's fragrant pages; to ask with him whether the true old Rose scent is found only among the pink, white and red Roses; whither has fled the true Musk odour of the Musk plant (Mimulus moschatus); and how it is that the musk scent of Wichuraiana Roses is confined to the stamens—or, as Parkinson stated it three hundred years ago, "the cheerful scent of these Roses consisteth not in the leaves but in the threads of flowers." And lastly, to chronicle the new or newer odour-bearing plants—the sweet-scented Viburnum Carlesii and V. fragrans, Hammamelis mollis, Osmanthus Delavayi and Lonicera syringantha; and to record the pleasant legend that the scent of Mentha citrata is the original scent of the world from which all others are derived; one so powerful that it will enhance the fragrance of any flower near it.

Our Supplement Plate.—On the occasion of the special show of alpine plants at Westminster, Mr. Mark Fenwick exhibited a wonderfully fine specimen of Ramondia serbica var. Nathaliae, and this is the subject of the Supplement Plate presented with the present issue. Mr. Mark Fenwick, Abbotswood, Stow-in-the-Wold, kindly sends the following note concerning this plant. "The plant illustrated is one of a batch of unpricked-off seedlings given me some ten years ago by Mr. Simpson Hayward, of Icombe Place. My gardener, Mr. Justin, who grows Ramondias extremely well, keeps them in a frame shaded from the sun in summer and never allows them to get dry at he roots. They are thoroughly moistened overhead, and all round the pans. The soil he uses is two-parts loam, one part leaf-mould and one-part peat."

"The Gardeners' Chronicle" Almanac for 1930.—The preparation of our Almanac for 1930 is now proceeding, and as we are anxious to include so many dates of horticultural exhibitions and meetings as possible, the secretaries of horticultural, botanical and kindred societies are invited to send us the dates of their fixtures for the coming year, to reach us on or before December 31, 1929.

Fifth International Botanical Congress (Cambridge, August 16-23, 1930).—By courtesy of the President and Council of the Linnean Society, a general meeting of British botanists will be held at the Society's Rooms, Burlington House, Piccadilly, W.1., at 3 p.m., January 10, 1930, when the Chairman of the Executive Committee will report the progress made in organising the Congress. All interested in the matter are invited to attend.

1929 Register of Growers of Certified Stocks of Potatos.—During the past season, Inspectors of the Ministry of Agriculture have examined over 8,000 acres of growing crops of Potatos with a view to certification if found to be true to type and reasonably free from rogues. Particulars of crops certified as reaching the required standard of purity of not less than 99·5 per cent. are given in the Register of Growers of Certified Stocks of Potatos in 1929, which has just been issued by the Ministry. Growers are reminded that, under the Wart Disease of Potatos Order of 1923, the only Potatos that may be planted in land on which Wart Disease has occurred at any time are Potatos of approved immune varieties, which have been inspected while growing, and certified as true to type and reasonably free from rogues, or Potatos of approved immune varieties saved from crops grown on the land in the previous year. The Order further provides that, on the sale of any Potatos for planting, the number of the relative certificate issued under the Order must be quoted. In the case of Potatos of approved immune varieties, the certificate number to be quoted is that given in the Register of Growers, but in the case of other varieties the number to be quoted is that of the relative Clean Land Certificate issued to the growers concerned, and not that of the Purity Certificate quoted in the Register. Copies of the Register of Growers may be obtained from the Ministry on application to its Offices at 10, Whitehall Place, London, S.W.1. Price 1s.

Gardens of England and Wales.—In its report for 1929, the Gardens Committee of the Queen's Institute of District Nursing states that through the great kindness of many owners, 690 gardens were opened between the months of April and September; a large number of these were open on more than one occasion, bringing the total of openings up to 939. The Committee greatly appreciates such a generous response from the owners to the appeal to show their gardens and is gratified to be able to report that the splendid sum of £7,765 was raised in aid of the work of the Queen's Institute of District Nursing and of District Nursing throughout the country. It is not possible to print a detailed list of the amount collected in each garden, but a list is appended showing what was raised in each county. It will be of special interest to see that His Majesty The King has sent £834 15s. from the opening of his gardens at Sandringham. The interest again taken in the scheme, not only in England and Wales, but also by overseas visitors, has been a great encouragement to the Committee; this shows that the scheme not only helps the work of District Nursing but is also a source of pleasure to those who visit the gardens :—His Majesty The King, Sandringham, £834 15s. 0d.; Bedfordshire, £51 16s. 0d.; Berkshire, 14s. 3d.; Buckinghamshire, £368 5s. 2d.; Cambridgeshire, £45 6s. 6d.; Cheshire, £287 8s. 0d.; Cornwall, £70 18s. 6d.; Cumberland, £15 11s. 10d.; Derbyshire, £170 0s. 9d.; Devonshire, £259 12s. 0d.; Dorsetshire, £504 18s. 11d.; Durham, £16 15s. 6d.; Gloucestershire, £254 16s. 6d.; Hampshire, £171 5s. 7d.; Herefordshire, £100 17s. 11d.; Hertfordshire, £128 6s. 0d.; Kent, £509 5s. 4d.; Lancashire, £359 13s. 2d.; Leicestershire, £48 12s. 0d.; Lincolnshire, £6 1s. 0d.; London, £44 15s. 0d.; Middlesex, £79 18s. 0d.; Monmouthshire, £40 11s. 9d.; Norfolk, £152 8s. 6d.; Northamptonshire, £30 8s. 0d.; Nottinghamshire, £130 6s. 10d.; Oxfordshire, £131 12s. 10d.; Rutlandshire, £16 2s. 3d.; Shropshire, £106 19s. 3d.; Somerset, £141, 16s. 0d.; Staffordshire, £43 18s. 9d.; Suffolk, £168 17s. 2d.; Surrey, £599 3s. 11d.; East Sussex, £454 14s. 11d.; West Sussex, £233 13s. 11d.; Warwickshire, £112 10s. 6d.; Westmorland, £31 10s. 6d.; Wiltshire, £249 2s. 7d.; Worcestershire, £39 8s. 0d.; Yorkshire—East Riding, £11 17s. 2d.; North Riding, £60 2s. 0d.; West Riding (including Small Gardens Scheme, 1928), £320 0s. 2d.; Wales—Anglesey, £202 14s. 9d.; Brecknockshire, £42 16s. 5d.; Carnarvonshire, £46 11s. 0d.; Denbighshire, £20 12s. 0d.; Glamorganshire, £29 5s. 6d.; Radnorshire, £4 1s. 0d.; Sundry Donations, £14 19s. 0d. Total, £7,765 17s. 7d.

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* *Journ. Roy. Hort. Soc.*, Vol. LIV, Part I. January, 1929.

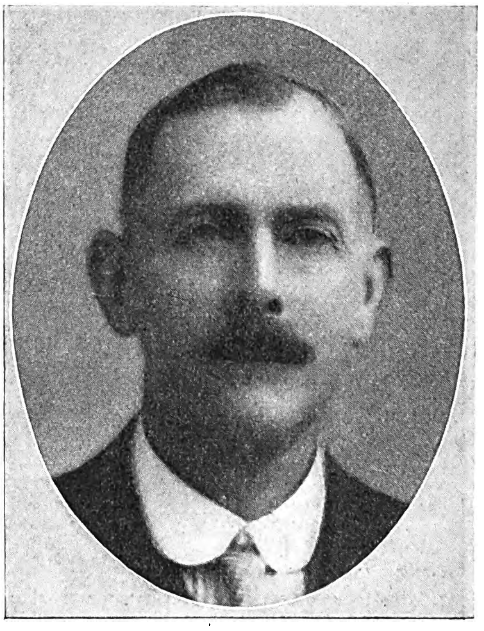
Mr. W. J. Bean.—We learn that Mr. W. J. Bean, who lately retired from the staff of the Royal Botanic Gardens, Kew, after forty years' service, has accepted the appointment of Adviser and Consultant on the planting on Highways to the Ministry of Transport. His duties will be to report on road-planting schemes, and the after-care of trees. He has also been appointed conjointly to the Roads Beautifying Association to visit and report on all planting schemes designed by its Technical Committee.

R.H.S. Examinations, 1930.—Prospective candidates for the examinations of the Royal Horticultural Society are reminded that the closing dates for entries for the 1930 examinations are as follows :—General Examination (seniors and juniors), January 13; Teachers' Examination (preliminary and advanced), January 13; National Diploma in Horticulture (preliminary and final), February 1; and Scholarship Examination, March 31. Entry forms and full particulars may be obtained from the Secretary, Royal Horticultural Society, Vincent Square, London, S.W.1.

French Chrysanthemum Congress.—On November 5, more than one-hundred-and-fifty Chrysanthemum growers assembled at Béziers, France, for their annual conference, presided over by M. Charvet, the President of the French Chrysanthemum Society. A number of questions were discussed, including means to prevent bud-drying, arsenic as a pest-destroyer, blossom-decay, diseases and parasites. A valuable medal was awarded to the contributor of the best paper, M. Fraigneux, of Neuchâtel, whose subject was "Diseases and Parasites." The Congress unanimously chose Geneva as the place of meeting for the Congress of 1930. The Society's Medal of Honour was awarded to M. Edmund Roucayrol, for thirty years a cultivator of Chrysanthemums in the south of France, and one of the pioneers in that industry. He edited the Society's propaganda leaflet, and took a considerable part in the organising of the Béziers Congress, and of the exhibition which accompanied it. Among the prize-winners at the latter were the following :—M. Henri Galinier, Béziers, Objet d'Art offered by the President of the Republic; M. Jacques Lemasson, Objet d'Art from the town of Béziers; M. Henri Cornette, gardener to M. Hennessy, at Cognac, Objet d'Art given by the journal *L'Eclair*; and the municipal gardeners of the town of Montpelier, a Silver-Gilt Medal from the Minister of Agriculture.

A New Botanic Garden for Massachusetts.—With the closing of the Harvard Botanic Garden, as announced in our issue of December 14 (p. 459), Massachusetts was left without a botanic garden, but this need has already been met by the establishment of a new botanic garden in the residential quarter of Lexington. The land acquired for this purpose is stated to be very fertile and mostly flat; it embraces about eleven acres and was formerly a market garden. The land is to be laid out in a series of gardens, each devoted to distinct subjects, and several glasshouses, including an unheated alpine house, will be erected. The work of laying out this new botanic garden has already commenced, and it is stated the testing of hardy plants will be carried out on a large scale. The garden will be open to visitors every day throughout the year.

Mr. J. Bond.—At the early age of twenty-four years, Mr. J. Bond was appointed gardener at Olantigh Towers, Wye, Kent; he continues in charge of this charming garden that contains a very fine collection of hardy fruits. During this period, Mr. Bond has served under two employers, W. E. S. Erle Drax, Esq., and J. H. London, Esq., the latter of whom has been in residence at Olantigh since 1913. Both Mr. and Mrs. London are keen gardeners and afford Mr. Bond every encouragement in his work. Mr. Bond has been a very successful exhibitor, winning prizes at Folkestone, Canterbury, Maidstone, Dover, and at the Royal Horticultural Society's exhibitions over a long period of years. Other successes with fruits have been won at the Imperial Fruit Show. Mr. Bond served as a lad at Pasbury House Gardens, Crediton, the residence of Lady Shelley, whose son conducted a market garden, where Mr. Bond gained a good training in the cultivation of Tomatos, Cucumbers, soft fruits and Marechal Neil Roses under glass. Further experience was gained at The Grove, Teignmouth; Holnest Park, Sherborne (then the residence of W. E. S. Erle Drax, Esq.), and Ashlyns Hall, Berkhamsted, before taking charge of the gardens at Olantigh Towers in 1896.



MR. J. BOND.

The Frankfurt Palm Garden.—The Palmengarten in Frankfurt, Germany, has undergone a considerable change this year. Meeting and dining rooms in the newest style have been created by remodelling the front of the great restaurant. These rooms are surrounded at the southern end with boxes, which are protected by glass, and filled with foliage and flowering plants in a very effective manner. One of the glasshouses is filled with stove plants, another with cool-house plants. The whole arrangement is of a very attractive character and affords visitors an opportunity of admiring beautiful plants while in the club rooms. The great Palm house and the plant show houses have been repaired and decorated so that the great damage sustained during the past fourteen years is no longer evident, and once more they contain valuable collections of plants.

Iris tingitana and Yellow Freesias.—Half-a dozen blooms of the beautiful Iris tingitana, borne on stout stems, and half-a-dozen spikes of a yellow Freesia, averaging eight flowers per spike, are brightening the editorial table this week. These were sent by Mr. James J. Staward, gardener to W. Ropner, Esq., Thorp Perrow, Bedale, who states that he commenced to cut flowers of both these kinds at the end of November, and expects to continue to do so regularly until the end of March. In each case the flowers were of fine size and substance, and admirable for floral decorations during the winter season.

Record Potato and Oat Crops in Scotland.—In the report of the crops produced during the past season, the Department of Agriculture for Scotland states that the estimated total yield of Potatos, amounting to 1,155,000 tons, shows an increase of 123,000 tons, or 11·9 per cent. The area under crop was about 145,000 acres, an increase of 700 acres compared with last year, and the yield was eight tons per acre, which is the highest ever achieved, the previous best figure being 7·6 tons in 1920 and 1922. The yield is also 1·5 ton greater than the decennial average. The standard natural weight of Oats (42 lbs. per bushel) was exceeded in Roxburgh, north-east Fife, Moray, south-west Banff, central Aberdeen, Kincardine, north-east Angus, south-east Perth and Stirling, while the standard weight was exceeded in fourteen other districts throughout the country. The estimated total production of Oats was 755,000 tons, an increase over last year's crop of 51,000 tons, or 7·2 per cent. The area under crop was greater by 10,295 acres, and the yield of 45·5 bushels marks an increase of 1·8 bushel compared with 1928, and of 5·4 bushels as compared with the average of the preceding ten years. Last year's yield of Oats was the highest then on record, and this year that record has been exceeded. The reports on Sugar Beet are generally favourable.

Appointments for the Ensuing Week.—Monday, December 30: National Chrysanthemum Society's Floral and Executive Committees meet. Tuesday, December 31: Royal West Renfrewshire Horticultural Society's meeting. Wednesday, January 1: Rotherham and District Horticultural Society's meeting; The National Carnation Society (Northern Section) meets; Gainsborough Allotment Holders' Association's meeting; Reigate and Redhill Gardeners' Association's meeting. Saturday, January 4: Leeds Paxton Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Coveney's Economical Manure.*—A ton of Coveney's Patent "Economical" Manure contains, according to Professor Apjohn's report of its composition, about 4 cwt. of plaster of Paris, 4 cwt. of Glauber salts, nearly 8 cwt. of green vitriol, and 2½ cwt. of common salt, together with 1½ cwt. of other things, which include 30 lbs. of sulphate of ammonia. Of course, these salts contain a large quantity of water—a mere useless addition to the weight of the mixture. The Glauber salts or sulphate of soda contains 55 per cent. its weight of water; the plaster of Paris, sulphate of lime, contains one quarter of its weight of water; and the green vitriol, sulphate of iron, 42 per cent. of water. In the case examined by Dr. Voelcker, this water amounted to more than 7 cwt. in every ton; the other ingredients in the dry state being—green vitriol nearly 5 cwt., bisulphates of potash and soda nearly 3 cwt., Glauber salts about 3 cwt., sulphate of ammonia about ½ cwt., together with 1½ cwt. of other things, chiefly sand. Excepting the absence of gypsum, and the greater quantity of ammonia present in the latter of these instances, they do not materially differ: the sulphuric acid, soda and iron being in both the principal and characteristic ingredients. *And, in themselves, and as direct applications, three less useful additions to ordinary English soils it would be difficult to select.—Gard. Chron., December* 30, 1854.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM GRANDE.

The specimen of Odontoglossum grande represented in the accompanying photograph (Fig. 230) was purchased by J. McCartney, Esq., Hey House, Bolton, as an imported plant, in 1922, at, I believe, a sale at Messrs. Protheroe and Morris's sale rooms. When I went to Hey House this plant was in a four-and-a-half-inch pot, and had only one lead; it now has thirteen leads. We grow Odontoglossum grande in the warmest part of the Odontoglossum house, and during the resting period very little water is given, but when the plants are in growth they are watered practically every day and sometimes twice a day in hot, sunny weather. The water we use is rain water, " with the chill off," but our water contains a good deal of soot brought down by the rains, for the atmosphere in Bolton is full of soot produced by the surrounding factories.

Within approximately a quarter-of-a-mile of Hey House there are no fewer than fifty factory chimneys. therefore readers will appreciate our difficulties in the cultivation of Orchids under such impure and uncongenial atmospheric conditions.

When it was photographed the specimen illustrated carried a total of ninty-one expanded flowers and five buds. *C. F. Potts, The Gardens, Hey House, Bolton.*

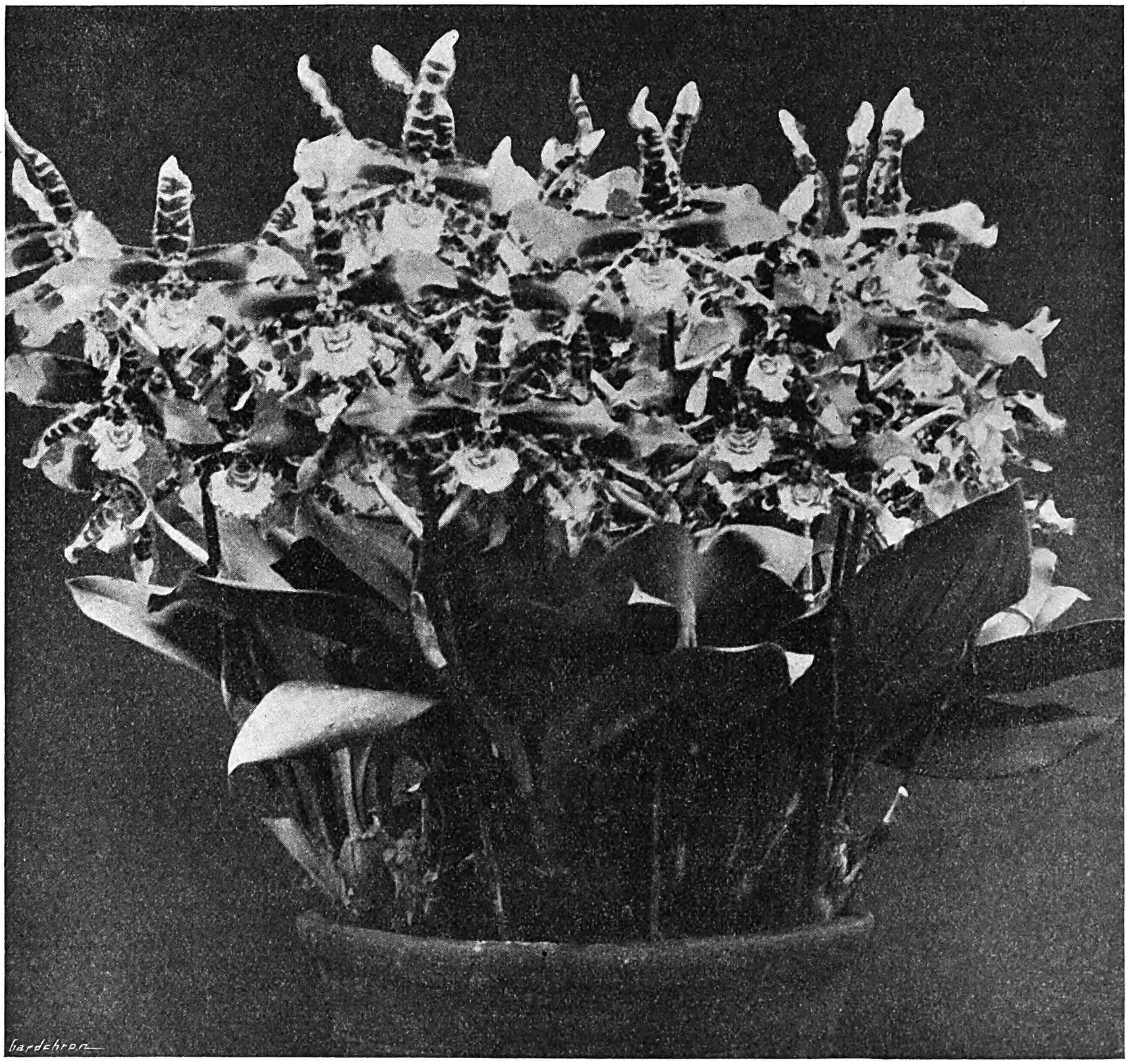


FIG. 230.—A FINE SPECIMEN OF ODONTOGLOSSUM GRANDE.

SOPHRONITIS GRANDIFLORA.

Quite a large number of plants of this small, cool house Orchid may be grown in a limited space suspended from the roof or kept close to the glass of the Odontoglossum house, where they can be shaded from bright sunshine during the spring and summer months. Batches of plants may be subjected to a slightly warmer temperature as the buds begin to show from the partly developed pseudo-bulbs, and by this method, with careful selection of the plants, a brilliant display of flowers may be had from December to April.

The flowers are produced singly on the new growths, therefore this Orchid is most effective when grown in clumps, with several leading points distributed evenly over the surface of the compost. Well-drained, shallow pans are the most suitable receptacles, and the compost should consist of three parts Osmunda fibre, cut moderately fine, and one part Sphagnum-moss; this should be pressed moderately firmly among the roots. Any necessary repotting may be done after the flowering period, when the young roots are seen appearing from the base of the new pseudo-bulbs; if repotting is done during the colder months the plants should be kept at the warm end of the house for several weeks, and care taken in regard to affording water, as with other freshly potted Orchids.

At this season, established plants do not require large quantities of water, although the compost should not be allowed to remain dry for long periods; plants in full growth should be kept just moist at the roots, avoiding extremes either way.

During the dull winter months the bright groups of scarlet flowers of S. grandiflora make an attractive display and should keep in perfection for many weeks if care is taken to avoid moisture collecting on the flowers and young growths; the flowers should also be kept free from contact with the roof-glass. Blooms that open in the spring months should not be exposed to bright sunshine, or the colour may soon fade.

Many distinct and beautifully flowered hybrids have been produced by crossing Sophronitis grandiflora with members of the Cattleya and Laelia groups, and these hybrids are best grown with, and afforded the same treatment as, Cattleyas. Many of the hybrids are considered rather difficult subjects to grow and often show preference for certain positions in the house, where, if they are found to be thriving successfully, it is best to let them remain, as it is often a question of finding the right spot in which to grow some of the less amenable kinds. Scale insects often attack the plants and multiply quickly under the outer skin of the old pseudo-bulbs. The skin may be safely removed from the older ones in order to dislodge the pests, but great care is necessary when cleaning the new or leading growths, as any removal of the outer skin before the pseudo-bulb is thoroughly ripe will often cause decay to get in. *W. Gilden.*

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Duckyls Park, East Grinstead, Sussex.

Masdevallia tovarensis.—This chaste and free-flowering Masdevallia is extremely valuable owing to it being in flower during the dull months of the year. The charming white flowers keep in perfection many weeks if the plants are kept at the warm end of the cool house or, in cold districts, in the intermediate house. Take care to prevent saturation of the compost and to prevent moisture collecting on the flowers, as the latter often causes unsightly spotting. As the plants pass out of flower the old scapes that were retained last year should be removed, some of the current year's scapes being retained if it is desired to produce another crop of flowers next season in conjunction with the new flower scapes. The expanded flowers of this species should not be fumigated or they will be spoiled.

HARDY FRUIT GARDEN.

By Henry H. Cook, Chief Assistant Lecturer, Reading University Horticultural College.

Planting Peach Trees.—Where the planting of young Peach trees is contemplated, the borders should have been prepared early, so that the soil may have time to settle before planting. Good drainage is absolutely essential, but the borders need not be more than eighteen inches in depth. The compost may consist of one part each of good garden soil and turfy loam, with bonfire ash, broken brickbats, chalk or lime rubble to form another part, and the whole thoroughly mixed. The border should be made extra firm to induce hard, short-jointed growth from the start. Prune all damaged roots and shorten those that are too long. Spread out the roots carefully at varying depths, working in among them some of the finer soil, and making the whole quite firm as the work proceeds. Allow a few weeks to elapse after planting before attempting to do any tying.

Pests.—A few pests are causing considerable anxiety to gardeners at the moment, and the most persistent and harmful of these is the capsid bug (Plesiocoris rugicollis), the Apple capsid, which causes a considerable amount of malformation and brown scabbing. The injury is done when the Apples are very small, hindering the development of the fruits and rendering them quite unsaleable. The eggs of this insect which are laid in July, are deeply embedded in the bark on the shoots, and there they remain until the following spring. When they hatch out they are wingless and immediately enter the developing buds, where they puncture the leaves and suck the sap. Later, they attack the young fruits, causing the distortion described. Various washes have been tried with only partial success; but great hopes are entertained of the Long Ashton wash.

Sprayers.—It is essential that the spraying machines and hose pipes should be overhauled to see that they are in working order. During inclement weather the opportunity should be taken to have these machines filled with soapy water and then pumped dry to ensure that "chippings" from internal parts have been washed out. Hose pipes should be tested for leakages and repairs made. It is sound economy to procure the very best hose, as inferior hose means delays and loss of valuable material by bursts.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Clivias.—Where Clivias are grown in quantity a few plants may be placed in a warm house and afforded more water at the roots. Clivias may be had in flower over a long season by introducing successional batches at intervals into warmth. The plants that comprise the main batch should be kept somewhat dry at the roots, but at the same time they should not be allowed to dry out completely. Any insect pests which appear should receive instant attention. Mealy bug is very partial to Clivias.

Bulbs.—Care should be taken to remove any bulbs which are plunged under ashes or other material out-of-doors directly they have started into growth and their receptacles are well filled with roots. It is best to remove them to frost-proof frames when this condition is reached, shading them for a week or so, and then gradually exposing them to sunlight and air. Hyacinths in a forward state may be moved into gentle warmth and given liquid manure. Narcissi, if well rooted, may be gently forced into flower.

General Remarks.—Continue the propagation of Carnations as young growths become available. Cuttings of these should root much better during the next two months than at a later date, and will provide excellent plants for next autumn and winter flowering. Large-flowered and early Decorative Chrysanthemums also need to be propagated now, but cuttings of late Decorative sorts, that are to provide the late batch of plants, should not be inserted for at least another month. Estimate so nearly as possible the requirements of the establishment with regards to forcing shrubs and bulbs, and arrange for batches to be introduced into gentle heat to provide a succession. The chief shrubs employed for this purpose include Azalea indica, A. mollis, Magnolias, Deutzia gracilis, Wistarias, Laburnums and Rhododendrons, but, of course, there are many other suitable subjects. Tulips, Narcissi, Hyacinths and Freesias are most commonly employed among bulbous subjects. Greatest success results from bringing these plants into flower by a gradual process; only introduce them to brisk heat when growth is well-advanced. Many early Peach houses and Vineries will be closed by this date, and the gradual raising of temperatures in these houses should favour good sturdy growth on flowering shrubs.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—If these were started as suggested at the beginning of this month with a moist, steady bottom-heat, growth should now be well advanced and the vines should soon be coming into flower. As this stage is reached the fermenting material may be renovated, not only to aid and soften fire-heat, but also to maintain root action, a most important factor in securing a good set at this early season. So soon as the inflorescences appear the temperature may be gradually raised to 60°, with a further rise when the flowers open to 65° at night and 75° by day, rising a few degrees higher through sun heat. Atmospheric moisture, on the other hand, should be reduced slightly, and advantage taken of the maximum temperature for fertilising the flowers, cross fertilisation being advisable. From this stage forward rich top-dressing and generous feeding plays a very important part in bringing the Grapes to maturity. In the management of the rods and laterals, it is important to have a full spread of healthy foliage; all shoots should be stopped at the first joint beyond the bunch, and if any space is left the leading laterals should be tied down and in due course stopped; minor laterals may be pinched and regulated in the usual manner.

General Work.—Push forward the pruning, cleansing and top-dressing in all fruit houses. Select sufficient vine eyes for securing stock if any planting of new vines is contemplated, to be potted next month and rooted in steady bottom-heat. All root-lifting and the renovation of borders should be concluded if possible before the end of the year.

THE KITCHEN GARDEN.

By W. G. Staward, Gardener to Lady Margaret Ryder, Knowle Gardens, Dunster, Somerset.

Parsley.—Young Parsley in frames should receive close attention. The frames should be ventilated freely so as to prevent damping of the leaves, and any dying foliage should be removed.

Perpetual Spinach.—Hoe between the lines of Spinach when the soil is in suitable condition, as this should be of benefit after so much torrential rain, which has made the surface of the soil hard, thus preventing air penetrating to the roots. A Buco cultivator is a splendid implement for this operation, especially if the bed is fairly large. Early Cabbage beds may be treated in the same way.

Lifting Crops, etc.—Late-sown Turnips which are at present in the ground may be lifted and stored, and the ground dug. If left in the ground, soil should be drawn up around the roots. Jerusalem Artichokes may also be lifted and the tubers placed in sand or fine ashes, care being taken to remove all the tubers from the ground, as if any are left they may prove troublesome to future crops. All trenching and digging should be hurried along so that the soil may derive the full benefit from exposure to the weather, although it is not advisable to work the ground while it is in a saturated condition.

FOR NORTHERN GARDENERS.

By John Hill, Gardener to Andrew Arthur, Esq., Rosemount, Monkton, Ayrshire.

Out-door Peaches.—The pruning and rearranging of the growths of Peaches on walls should be carried out soon. Very little, if any, pruning should be necessary if the fruited wood was removed after the crop was gathered. Some prefer to leave the shoots hanging free of the wall until spring to retard the opening of the flowers, but I have never found this of any advantage. Where properly ripened, as they are this year, no shortening of the young growths should take place, whatever their length, but if cutting back is necessary owing to unripe wood, prune to a growth bud, generally to be found between two flower buds. All ties should be loose enough to allow ample room for the swelling of the shoots next season, or much harm may result, and each shoot should be secured just behind the leading bud to prevent breakage when growth takes place.

General Work.—All fallen leaves should be collected and stacked, if not already attended to, and if Oak and Beech leaves are plentiful these should, if possible, be kept separate. A fairly dry place should be chosen for the leaf heap, for if too damp, decay will be too rapid, to the detriment of the product. All stakes should be inspected during bad weather, and put in order for use next year, after which they may be tied into bundles and stacked. Any damaged mowing machines should be repaired and the cutting blades sharpened if necessary. Glass structures, having been cleared of Chrysanthemums, should receive a thorough cleansing, any brick walls being given a coating of lime or cement wash containing a goodly quantity of paraffin oil. Although Irish lime is often used for this purpose, I do not approve of it, as it throws back the sun-heat and, I am convinced, encourages red spider. Cement wash, on the other hand, absorbs much of the sun's heat during the day and remains clean for a longer period.

Winter-flowering Carnations.—Cuttings inserted at the beginning of the month should now be rooted and must be potted without delay, as there is no nourishment in sand. The smallest possible pots should be used, and a compost of good sound loam, with a little lime-rubble, burnt soil and sand added. Wash off any sand adhering to the roots, and after potting, keep the plants close for a few days, a light spray being in most cases all the watering necessary for some time.

THE DAVIDIAS.

No introduction of recent years has caused so much interest among cultivators of trees as the Chinese Dove Tree. Most authorities concerned define two distinct species, Davidia involucrata and D. Vilmoriniana.

Seen growing together in gardens the two are easily identified. D. involucrata has very marked red colouring on the young shoots and petioles, and the undersides of the leaves are conspicuously downy. Moreover, it is not such a free-growing, nor so hardy a tree, as D. Vilmoriniana, and so far as I am aware has not yet flowered under cultivation in this country. D. Vilmoriniana is much more free in growth, while the undersides of the leaves are quite devoid of down, and glaucous. Many of the trees planted in various parts of the country and raised from seeds collected by Mr. E. H. Wilson during his first expedition to China for Messrs. James Veitch and Sons, from 1899 to 1901, now flower annually and produce fruits.

Davidia involucrata was first discovered in Mupin, western Szechuan, and specimens were collected by the Abbé David in 1869. The first trees introduced to our gardens were raised from seeds collected by Mr. Wilson during his second expedition during 1903-1904.

D. Vilmoriniana was first discovered in Wushan Hsien, eastern Szechuan, by Professor Augustine Henry, in 1888. It was later found, and seeds were collected, in north-eastern Szechuan by Père Farges, in 1897. Of the thirty-seven seeds sent by him to the late M. Maurice de Vilmorin, only one plant was raised, this germinating in 1899. From this plant cuttings were rooted, one of which was sent to Kew and another to the Arnold Arboretum. The species first flowered at Les Barrés in 1906. The plant received at Kew from M. Vilmorin in 1901 was planted in the Himalayan House and flowered for the first time in 1913. It was illustrated under the name of Davidia involucrata in *The Gardeners' Chronicle* of July 13, 1918, (Vol. LVIII, p. 43, Fig. 14), and as depicted, shows more flowers than leaves. As one would expect from such a free-growing tree, it quickly attained a height of thirty feet and outgrew its position in the centre of the Himalayan House. With considerable difficulty the tree was moved to the main Temperate House, but failed to survive the shift. Fortunately, it had produced fruits and several seedlings are now growing at Kew.

The tree of D. Vilmoriniana illustrated (Fig. 231) is one of some thirteen thousand seedlings raised from seeds collected during November, 1900, by Mr. Wilson in the woods south of Ichang, western Hupeh. It is twenty-seven feet six inches in height, and has a girth near the base of twenty-eight-and-a-half inches. The beautiful picture this tree produces when in flower may be judged from the statement that it recently brought to maturity some four hundred fruits.

One of the largest trees in the country is apparently a specimen growing at Buckhold, Pangbourne, Berkshire. It is forty-two feet in height with a stem girth near the ground of thirty-nine inches, the branches having a spread of about forty feet.

From the seeds collected in 1900 by Mr. Wilson, the first tree to flower was one at the Coombe Wood nursery, in May, 1911.

In a wild state, D. Vilmoriniana attains a height of about sixty feet. The leaves in their general appearance suggest those of a Lime (Tilia). The inflorescences are borne during the second half of May, and when freely produced make a remarkably attractive spectacle, suggesting dozens of ladies' small white handkerchiefs waving in the breeze, or, at a distance, as the American name of Dove Tree suggests, looking like flocks of doves among the newly developed leaves.

The attractive portion of the inflorescence consists of two large bracts of unequal size enveloping the true flower. When fully developed these are pure white, the larger one some six inches long and three inches wide, the smaller bract less than half these dimensions. The essential parts of the flower are produced in a hemispherical cluster of numerous stamens and an ovary which later develops into a sub-globose fruit containing the hard, corrugated nut.

Seeds, layers and cuttings provide means of increase.

Presumably because they had been kept dry for some time before sowing, the seeds originally imported took two years to germinate. It is found, however, at Kew, that if the fleshy portion of the fruit is removed so soon as mature and the fruits are sown at once, a goodly proportion of the seeds germinate the following spring and the seedlings attain a height of twelve to eighteen inches during the first year of growth.

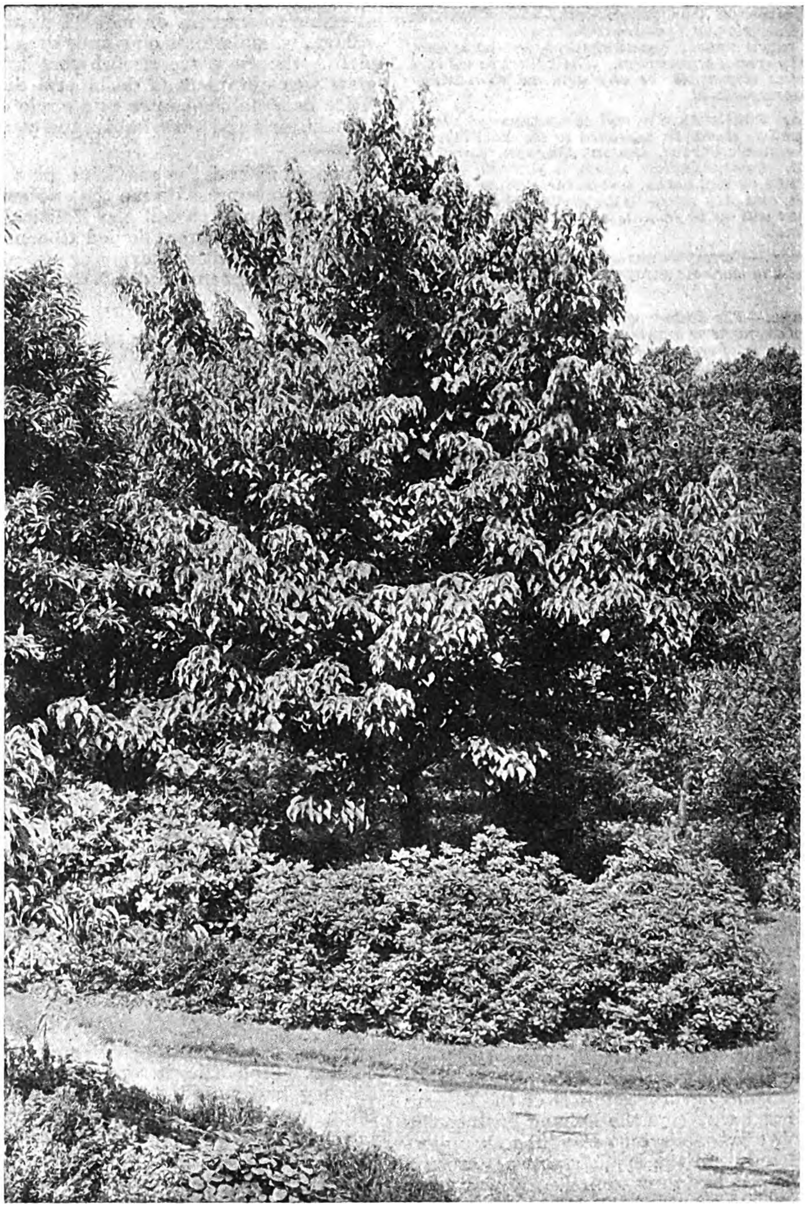


FIG. 231.—DAVIDIA VILMORINIANA AT KEW.

Where the conditions are available, place the nuts in the fibre of a propagating case, with slight bottom heat. Failing this, sow the seeds in shallow boxes of very sandy soil in a greenhouse, cold frame, or outside. It is very noticeable that uncleaned seeds take longer to germinate than cleaned ones.

The best means of rooting cuttings is to insert portions of the half-ripened growths in a close propagating case, with slight bottom heat, towards the end of July. A record of experiments made in the rooting of cuttings of D. Vilmoriniana appeared in the issue of *Gard. Chron.* of March 23, 1929, p. 227.

The Davidias thrive under the average conditions we afford ornamental trees in the pleasure grounds, parks and open woodland. They should be given a good start in deeply trenched, loamy soil.

Avoid planting, if possible, in wind-swept positions, as in a mild spring new growth starts early, and cold, cutting winds, or late spring frosts, may injure the young and tender leaves.

During one unusually early spring the half developed flowers on the Davidia tree illustrated were badly damaged by frosts during the first week in May.

A third species of Davidia, D. laeta, was described by M. L. A. Dode, the French botanist, in the *Revue Horticole* in 1908, but his character of a glabrous leaf, yellowish-green beneath, is not constant, and under cultivation it is indistinguishable from D. Vilmoriniana, and it is now not generally regarded as a valid species. In *Plantae Wilsonae*, Mr. Wilson considers it a question of position—whether the tree is growing in shade or fully exposed. *A. Osborn.*

[Until quite recently, considerable confusion existed as to the exact status of D. Vilmoriniana, this having been regarded as a form of D. involucrata, with the result that the various records under the latter name have, apparently, referred to D. Vilmoriniana.—Eds.]

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

XL.—From the Dibang to the Dihang.

A PHYSICAL map of this part of the Indian Empire shows the long, flat, green trough of the Assam valley, with the Brahmaputra forming a meshwork composed of ever-shifting channels and chapri (islands), in the middle flowing westwards, and the brown highlands (brown on the map, that is) clasping it closely—the Himalayas to the north, the Naga and Khasia hills to the south. At the head of the trough the rivers break through the girdle separately, rushing down from the cold, snow-bound ranges to the north; first and foremost the famous, mysterious Dihang, in the centre the small Dibang (Fig. 233), and further east the Lohit. These three, with other smaller rivers, join at Kobo, situated at the extreme apex of the trough, to form the Brahmaputra. My object now was to go right round the head of the trough at the very foot of the hills, starting from Sadiya and working round from the Dibang to the Dihang and from the Dihang back to the Lohit, with excursions into the hills as opportunity offered. In the last chapter we crossed the Dibang; I had now to make my way from Dambuk to Pasighat, through the Abor foot-hills.

On December 3, we started again, the Dambuk coolies taking us so far as the Sisseri river, reached in two hours. The river bed is fully six hundred yards wide, but at this season it was nearly all shingle and sand banks; nevertheless, we had to ford the river waist deep, and the water was bitterly cold. There were several fish traps here—long, funnel-shaped baskets dragging in the swift current by Bamboo ropes attached to a spar.

The Dambuk coolies took me across the Sisseri, dumped me on a sandbank and fled. Half-an-hour later the Sipo contingent arrived to take me on to their village, where we arrived in the afternoon; here we camped in the bed of a stream.

It may be remarked that all the hill tribes have a sound empirical knowledge of the dangers of infectious disease, and understand quarantine. When an epidemic breaks out they at once isolate the village. The village itself takes all reasonable precautions, and either barricades the path with tree trunks, or puts up some sign, such as a pair of crossed sticks, so that anyone infringing the taboo does so at his own risk. However, it appeared that there was no epidemic at Sipo—the story had been fabricated by Dambuk; at least, so the Sipo Abors were at pains to impress on me. I went up to the village, which stands on a spur over-looking the plain, whence a wonderful post impressionist view was obtained at dusk, and drank apong (Rice beer) in the centre of a circle of men and women, girls and boys, babies and pigs, fowls and mithan.

The Gam and the medicine man were most anxious to impress on me that no one was sick, and begged me to tell the Political Officer in Sadiya that they were denied all communication with Dambuk without cause or just impediment. The only symptoms of death and disease became apparent next morning, when I could get no coolies. Sipo said it was not their business, as they had supplied them the previous day. Silik, another village not far off, said they had not any coolies. The fact is, none of the hill tribes really like doing coolie work, especially at this season when all the girls are at work in the fields, and all the young bucks out hunting in the jungle with bow and arrow. The Political Officer, when he wants coolies, has merely to demand that so many shall be ready at the specified time and place; if they are not there unpleasant things happen. But although I was travelling with all the authority of a government officer, I had no escort, and no way of enforcing my demands. However, the Sipo Gam did his best for me, although it was well past midday before he beat up eight harassed coolies, and we got off. Luckily, the next village on the line of march was only about five miles away, and we camped at dusk after a dull walk through secondary growth and new clearings. The huge feathery grass—a species of Saccharum—was conspicuous here, and I picked up the twisted pods, full of hard, scarlet seeds, of some Leguminous tree or liana—possibly a Pithecolobium.

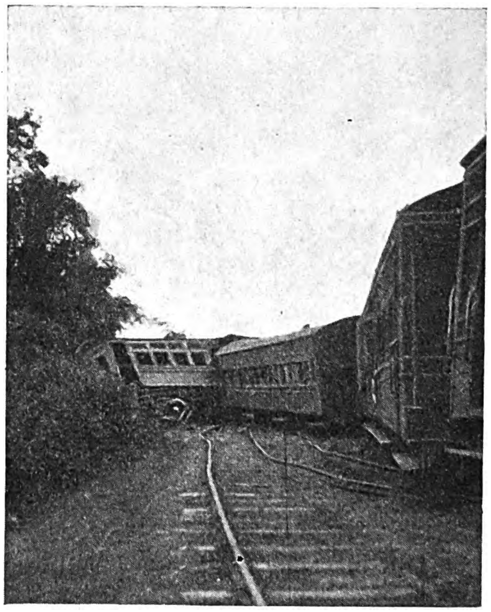

FIG. 232.—THE DERAILED ASSAM MAIL.

The Mebu Abors were friendly and efficient, and produced eight coolies early the following morning. A monotonous march of six miles through the jungle brought us at midday to the bank of the Dihang; and we passed abruptly out of the cool, moist twilight into the slashing glare of the open river bed. Crossing several hundred yards of pebbles, we reached the river opposite Pasighat, and were ferried over by dugout.

It was a gorgeous day, and the view of the Dihang, backed by the thickly-forested mountains, with Pasighat sitting tidily at their foot, was very fine; I looked forward to several pleasant days here, with excursions into the jungle. However, no sooner was I settled in the bungalow than I received a cable forwarded several days previously from Sadiya, which made a quick move to Calcutta essential; and the only plant I collected in Pasighat was a Strobilanthes with large, violet flowers. I was in a fix. There was not a single sahib in Pasighat at the moment, and without a car it would take me at least two days to reach Sadiya, even if boats or carts had been ready on the spot—which they were not.

However, a few miles away a man I knew very well who was working with a timber firm, had his camp, and I sent him a note. He came in to dinner that night, and promised to drive me through to Sadiya next day, December 6. The actual distance in an air line is about thirty miles, but there are no air liners in Assam yet, and the route is as follows:—(1) Pasighat to Kobo, twenty-three miles by road; (2) cross the Brahmaputra to Rongdoi, say, one mile; but it takes two hours with a car, the current being very swift and the raft (Fig. 234) unwieldly; (3) Rongdoi to Saikhoa Ghat up the left bank of the Lohit, thirteen miles by road; and on another two miles to the ferry; (4) cross the Lohit—this does not take long, even with a car; (5) from the ferry to Sadiya, three miles by road. Thus it took us six hours, for on the dirt roads of the frontier tract one cannot average more than about fifteen miles an hour—at least, with a four-cylinder car.

Two days later, I left Sadiya for Calcutta; crossing the shrunken Lohit by motor-launch, we stuck on a sandbank, and I missed my train, and had to spend the night at Saikhoa, since there is only one train every twenty-four hours. Next morning I went for a walk down the Assam Valley Trunk Road—only a dirt road for all its grand manner—which goes to Gauhati, 335 miles away; and noticed a number of flowering shrubs, among them quite a pretty Hibiscus with salmony-pink flowers. There is another Hibiscus commonly seen in the foot-hills among secondary growth, with big, bright yellow flowers like floppy Poppies. Another bushy shrub in flower was a sort of Bladder Senna with yellow flowers darkening to a warm brown as they aged. There was also a 'cucumbersome' creeper with palmate leaves and small, cream-coloured flowers followed by tiny, warty-looking Cucumbers. But most of the area around Saikhoa is cultivated, and the trees and shrubs along the roadside were covered with dust.

That afternoon I caught my train. After coming safely through all the perils and tribulations of the Mishmi and Abor Hills, it was rather unkind of the Assam mail to choose that particular day (that is to say, the next day, December 11) to wreck itself (Fig. 232), and that without visible cause. During the monsoon, bridges are often washed away, or sections of the line sag out of sight, on the Bengal Assam Railway; and even during the cold weather it sometimes happens that the engine hits a careless elephant and bounces into the jungle, or richochets off a stray buffalo. But to be piled up in the dry weather, without hitting anything, on a sound track, and that in the darkness and mist of early morning, is unfair. Two waggons, two passenger coaches, and the dining car were smashed and hurled into the jungle on either side of the impermanent way. The next coach, in which were the European passengers, most of us asleep, having lurched off the rails and run on for a hundred yards, was about to telescope itself on the shambles ahead, when the whole outfit came to a standstill; the couplings had broken in front some time previously and the engine had gone on alone. So we got off lightly; but it was all very annoying, as we were twenty-four hours late in Calcutta.

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* Previous articles on Mr. F. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII; July 7, 21; August 4, 25; September 1, 22; October 6; and November 3, Vol. LXXXIV; January 19; February 2, 16, 23; March 22, 16, 30; April 13, 27; May 18, 25; and June 1, 15 and 29, Vol. LXXXV; July 13, 27; August 10, 24; September 7, 16, 28; October 12, 26; November 9, 23, 30; December 7, 14 and 21, 1929.

We heard afterwards that the engine driver was asleep when the accident happened; that the accident was caused by the breaking of an axle-box, whereby some wheels left the rails; and that we ran on gaily over the sleepers and the ballast for two miles, safely negotiating a narrow bridge over a deep river, before the whole train got the jumps and piled itself up. Needless to say, only those of us who were in the train knew what a narrow escape we had had; for no one having been killed, and only a few natives injured, and the wreck being safely entombed in the jungle a hundred miles from anywhere, the railway company casually issued a notice to the Calcutta press that "owing to the derailment of five coaches of the Assam mail, passengers and mails would be trans-shipped," etc., etc., and the company did not even indemnify us for broken time!

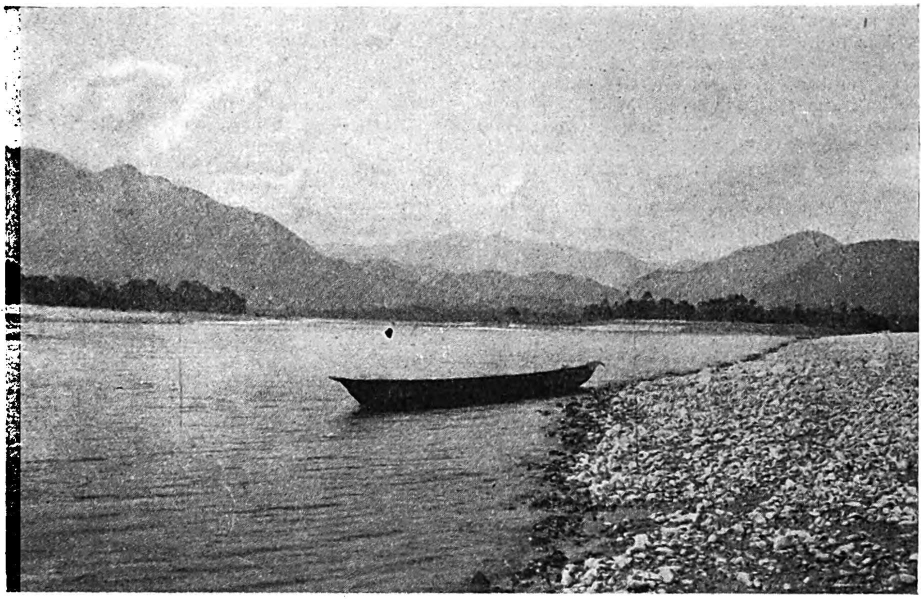

FIG. 233.—THE DIBANG AT NIZAMGHAT.

However, I just caught the Roosevelts before they left Calcutta for China, and arranged to join them in Cambodia in the spring, and within four days of seeing them off to Rangoon, I was speeding across India to catch my boat at Bombay. *F. Kingdon Ward.*

The End.

THREE NEW RHODODENDRONS FROM TIBET.

In going over my 1924, 1926, and 1928 collections of Rhododendrons with Mr. J. Hutchinson, at Kew, we came across the three described below, and being unable to match them, named them as new. In my field book I found full descriptions, written in Tibet in 1924 from living plants; so evidently I suspected them of being new even then.

No complete list of these Rhododendrons has yet been published, although it is hoped to have one ready soon. The apparent delay is not really so surprising when it is remembered that the three collections together contain nearly 350 numbers, with over 150 species, of which, perhaps, twenty per cent. are distinct new species, excluding varieties.

Professor W. Wright Smith and Mr. H. F. Tagg have kindly undertaken most of the elepidote species at Edinburgh. Mr. J. Hutchinson and myself have been engaged on the lepidote species at Kew; but owing to Mr. Hutchinson's recent absence in Africa and to his other labours, and to my own various absences in Asia, the work has been held up. From time to time descriptions of new species have been published by Mr. Tagg in the Edinburgh *Notes*, and in *The Gardeners' Chronicle*, either from the herbarium specimens, or, when these lacked flowers, from cultivated plants as they came into flower either in the botanic gardens or in private gardens and were forwarded to Edinburgh by growers for identification; and it may be some time yet before a full determination is possible, as there are several species whose identity cannot be satisfactorily settled until they flower in this country. In the meantime, following this precedent, I am publishing the names and descriptions of three new species, which are likely to flower in 1930.

Considering the number of Rhododendrons known from this part of the world, and the numerous names which have recently had to be reduced as a result of a livelier appreciation of the variation of species, twenty per cent. of new species may seem rather a tall order. But when we remember that all three expeditions were made, not merely into unexplored country, but into the almost inaccessible heart of the mountains which hitherto have been attacked only from their ends, from Sikkim in the west and from Yunnan in the east, the proportion is not unreasonable.

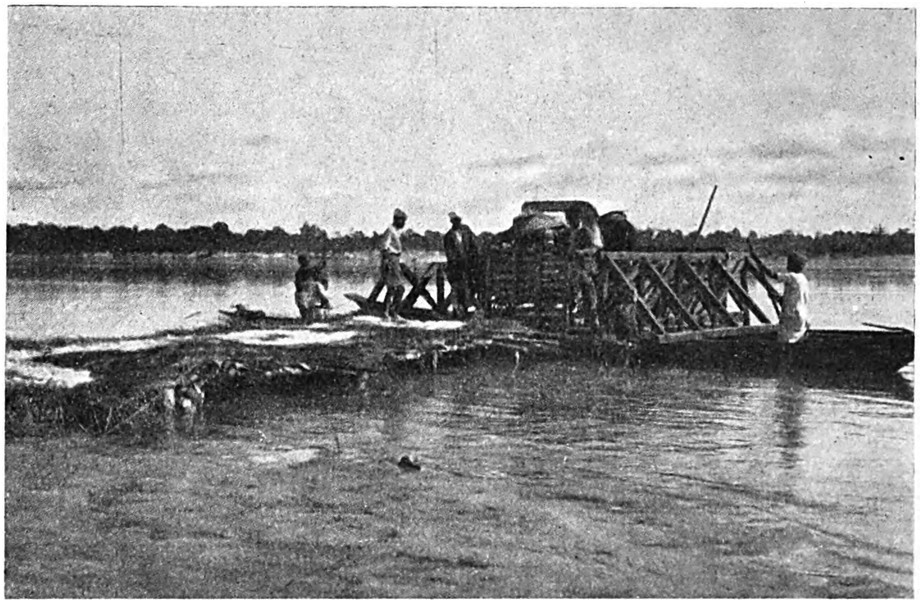

FIG. 234.—THE FERRY CROSSING THE BRAHMAPUTRA.

Rhododendron rivulare, Ward.

An aromatic, spreading undershrub a foot high. One-year-old twigs yellow, covered with orange, scurfy scales; bark ultimately grey.

Young leaves with closely lepidote upper surface, scales silvery; under surface densely lepidote, the scales at first silver, eventually turning buff; margin with a few long, silken hairs, which are soon lost.

Adult leaves shortly petiolate, oval, 0·75 inch long, 0·5 inch wide, apex with a ruby-red mucro. Upper surface glistening, covered with silvery scales; lower surface densely lepidote, fawn-coloured; petiole 0·06 inch long, with chaffy scales which extend to the midrib.

Inflorescence a terminal umbel of two to four flowers. Pedicel 0·6 inch long, red, lepidote. Calyx red, leafy, cut to the base; lobes oval or obovate, 0·25 inch long, margin finely ciliate, the under surface lepidote at the base, scales yellowish.

Corolla rose-purple, with darker spots on the upper lobe, slightly oblique, butterfly-shaped, flattened, with very short tube, the lobes rounded, lepidote on the reverse; one inch long, 1·5 inch wide; glabrous inside except for a slight puberulousness at the throat.

Stamens ten, sub-equal, spreading, each filament with a dense tuft of silken, white hairs at the base.

Gynoecium one inch long. Ovary conical, lepidote, slightly fluted. Style red, 0·8 inch long. Stigma discoid, lobulate.

The following field note is attached to the type:—"Dwarf shrub, forming little bushes about a foot high, in open pastures and along the banks of the stream, often overhanging the water. Flowers bright rosy-purple with darker spots on the upper lobe." Doshong La, southern Tibet, lat. 29° 30′ N., longt. 95° 0′ E., 10,000 to 11,000 feet. 23.6.1924. Kingdon Ward, 5,828. Type in Herb. Kew.

It is also found north of the Tsangpo. "Flowers over, fruits ripening, Calyx red. Undershrub of six to twelve inches, in open. boggy meadows, forming clumps." Nambu La, southern Tibet, lat. 30° 0′ N., longt. 94° 30′ E., 12,000 to 13,000 feet. 13.8.1924. Kingdon Ward, 6,087. Also No. 6,224 (fruit), from the Doshong La.

The next record of this species is from far northern Burma:—"Flowers vivid purple with darker spots on the upper lobes. Undershrub of a foot or less to eighteen inches, growing in thickets with other species, nestling down amongst them (*c.f.* No. 5828 collected in Tibet in 1924). . . . The first of three local species to flower. [The other two being R. saluenense, Franch., and R. calciphila, Hutchinson et Ward]. Practically over by the time the other two are in bloom." Seinghku Wang, Burma, lat. 28° 8′ N., longt. 97° 24′ E. 11,000 to 12,000 feet. 12.6.1926. Kingdon Ward, 6,903.

"Dwarfed alpine growing on the slate screes; now in full bloom. Grows also with the Lapponicum Rhododendrons on the open moorland slopes at 14,000 to 15,000 feet." Same locality, 14,000 feet. 7.7.1926. Kingdon Ward 7,061. Also No. 7,062. "A later-flowering variety of No. 6,903." Also No. 7,553. "Autumn-flowering of No. 6,903. The young foliage is strongly aromatic."

A third record is from Assam:—"A dwarf aromatic undershrub crowded with bright purple flowers. Grows socially in the alpine region." Mishmi Hills, Assam, lat. 28° 15′ N., longt. 97° 0′ E. 11,000 to 12,000 feet. Kingdon Ward, 8,229.

R. rivulare, seen growing by itself, at once recalls R. calostrotum, although when both species are compared the differences are at once obvious. The calyx of R. rivulare is almost glabrous instead of densely crusted with scales, and the margin only minutely ciliate. It has much shorter pedicels, giving a more compact truss which consists of from two to four flowers, instead of two only as in R. calostrotum. Lastly the scales of the under-leaf surface are buff, not cochineal-red.

R. rivulare is a much more gregarious species than R. calostrotum, or, indeed, than almost any other 'Saluenense' species; it forms wide drifts by itself, in this respect resembling the 'Lapponicum' type. Most of the 'Saluenense' Rhododendrons, including R. saluenense, occur either scattered through dense underscrub composed of several species, or the plants themselves are scattered over the turf slopes and on rock outcrops, among dwarf Bamboo, like R. keleticum.

The species has a considerable extension from southern Tibet to northern Burma on a line running N.W.-S.E. for two hundred miles. R. calostrotum has only been recorded from the Hpimaw district of north-east Burma, 150 miles south-east of the Burma record for R. rivulare.

The specific name, of course, refers to the original locality, where the plant overhung the stream.

As regards the horticultural outlook, R. rivulare should prove at least as hardy as R. calostrotum, and being more heavily flower-powered, is really the better plant.

RHODODENDRON FRAGARIFLORUM, Ward.

Undershrub with ascending stems rising to a height of four inches above the ground and forming dense, much-branched tuffets. Bark ash-grey. Young shoots slightly lepidote; juvenile leaves with both surfaces lepidote, margin reddened, with a few scattered hairs, and prominent red mucro; aromatic.

Mature leaves oblong-oval, 0·5 inch long, 0·25 inch wide, margin slightly inrolled, mucro more or less sunk, inconspicuous; upper surface dark green, with closely-set, glistening scales, lower surface paler, shiny, with widely scattered, small, bronze-coloured scales.

Flowers in terminal umbels of two, three or four. Pedicels 0·4 inch long, lepidote, red. Calyx large, five-lobed, densely lepidote at the base, the scales extending to the backs of the lobes; cut to the base, the lobes oval, red, the margin finely waved, beaded with small, glistening scales.

Corolla five-lobed, flattened, slightly irregular, about one inch wide, 0·5 inch in depth, purple, or crushed-Strawberry colour; tube very short, lobes oval or oval acute, 0·5 inch long, 0·3 inch wide.

Stamens ten, sub-equal, about 0·5 inch long; filaments glabrous, except for a tuft of crimson hairs at the base, more developed in the upper five than in the lower five; purple.

Ovary conical, truncate, 0·1 inch long, green, densely lepidote, with five shallow grooves. Style 0·5 inch long, glabrous, crimson, with discoid lobulate stigma.

"Forms hassocks and continuous carpets not above six inches high on the exposed side of the pass. Leaves strongly aromatic. Flowers in small trusses of two, three or four. In bud." Temo La, southern Tibet, lat. 29° 35′ N., longt. 94° 35′ E., 15,000 feet. 5.6.1924. Kingdon Ward, 5,734.

"Flowers the colour of crushed-Strawberry, slightly fragrant. All over the open alpine region. Flowers from mid-June to mid-July or later." Nyima La, southern Tibet, 14,000 to 15,000 feet. 20.6.1924. Kingdon Ward, 5,810. Type in Herb. Kew.

This is the 'Strawberry Saluenense,' which name has been preserved. In several respects this species departs from the usual 'Saluenense' type, particularly in its foliage, the scales on the under leaf surface being very small and wide apart. Flower stalks very short; margin of calyx not ciliate. The flower colour is probably unique in the genus. R. fragariflorum occurs on both sides of the Tsangpo, but is much more common on the northern (dry) ranges than it is on the southern. On the Temo La it grows gregariously with two other species, a 'Lapponcum' and a 'Cephalanthum.' It is an extremely bright and floriferous plant, the contrast between the dark olive-green leaves and the crushed-Strawberry flowers being most striking. It seems to form a link between the 'Saluenense' and the "Lapponicum" series, and is quite unlike any other dwarf Rhododendron.

RHODODENDRON TSANGPOENSE, Ward.

Aromatic, bushy undershrub, one foot to two feet high. One and two-year-old shoots with scattered scales. Bark ultimately grey.

Leaves aromatic, oval, with mucronate apex, 1·1 inch long, 0·5 inch wide; upper surface mat, dark green, lower covered with a waxy, bluish-grey bloom, both surfaces lepidote, with scattered scales. Petiole 0·1 inch long, upper surface grooved.

Inflorescence a loose terminal umbel of four to five pale purplish-pink flowers. Pedicel one inch long, reddened on one side, lepidote. Calyx regular, campanulate, 0·3 inch long, cut almost to the very lepidote base; lobes oval, green, with scattered scales which likewise bead the margin.

Corolla campanulate, 0·75 inch long, 1·25 inch wide, five-lobed, the lobes oval, spreading, 0·5 inch long; puberulous inside at the base.

Stamens ten, alternately longer and shorter; the longer 0·6 inch, the shorter 0·4 inch long: filaments expanded at the base, pubescent right up to the anthers.

Ovary cylindric, fluted, lepidote, green; 0·1 inch long. Style glabrous, fleshy, red, bent, rather at right angles near the base; expanded into a cup at the summit, containing the five-lobed stigma.

"Grows as dense scrub one to two feet high on steep alpine slopes, on both sheltered and exposed flanks. Style sharply bent down." Doshong La, southern Tibet, lat, 29° 30′ N., longt. 95° 0′ E. 12,000 to 13,000 feet. 24.6.1924. Kingdon Ward, 5,844. Type in Herb. Kew.

[No. 5,844A. appears to be a different species, more closely akin to R. charitostreptum.]

This species was abundant on the range south of the Tsangpo, forming much of the scrub by itself. The clear Apple-blossom-pink flowers are particularly charming, contrasting with the bluish-white under-leaf surface. R. tsangpoense differs from R. glaucum, its closest relative, in having the filaments hairy almost to the top, and a nearly glabrous—not densely scaly—calyx. The leaves have a rounded apex and are very laxly lepidote below. *F. Kingdon Ward.*

ALPINE GARDEN.

ROCK GARDEN VERBENAS.

The statement by *S. A.*, in his note on Verbena chamaedryoides, p. 403, in which he writes:—"This Verbena is probably the hardiest of all the plants of the genus," is not borne out by my experience of several of the Verbenas.

The heliotrope-coloured V. venosa, often employed extensively as a summer bedding plant, sometimes survives the winter, so long as it is not too severe, and grows away again quite well the following year. V. chamaedryoides has also survived the winter with me—only just—but invariably it is so badly crippled through the ordeal that the early summer has arrived before life becomes very apparent in it. This being the case, plants of V. chamaedryoides left to winter out-of-doors, no matter how protected the site may be on the rock garden, are never relied upon for next season's display, a batch of young plants from cuttings being wintered in a cold frame which is covered with mats during severe weather. Incidentally, this Verbena seems to strongly resent dampness in the winter, the growth dying off unless a free circulation of fresh air is maintained in the frame whenever possible.

Another species which is certainly hardier than V. chamaedryoides is V. radicans, which although not possessed of the "fiery" blooms of the former species, is a valuable subject for brightening the rock garden in late summer and early autumn.

V. radicans survived several winters in the open rock garden, with no protection other than a dense bush of the evergreen Berberis buxifolia on the north-east side, and each year made a wide, matted carpet of interlacing growths clothed with glossy, dark green, deeply divided leaves. It should be planted in a warm, sunny position in loamy soil containing a goodly quantity of lime-rubble to render certain its free-flowering. In shady positions it grows and covers the ground in splendid fashion, but flowers in but niggardly manner; but when in a sunny position the carpet of foliage becomes sheeted with heads of small, pale lavender flowers carried on stems six inches high arising from the leaf-axils. Even with V. radicans, however, it is wise to winter some stock plants in frames. Stock is easily secured, as the creeping growths produce roots from the nodes along their whole length, and if these are severed and potted up a more than sufficient stock may be obtained.

I believe also that V. Mahoneti, a species that has received considerable publicity by certain nurserymen during the last two years, is hardier than V. chamaedryoides, and will survive mild winters in the open, although I have not grown this species myself. I may state that no Verbena survived last winter in my rock garden—but then, what self-respecting Verbena would! *Kent.*

ANEMONE NARCISSIFLORA.

The genus Anemone embraces a large number of plants which are of the highest beauty and which have well deserved the devotion of flower-lovers in this and other countries for generations. Yet some of the most beautiful are absent from many good gardens, and their inclusion would be greatly to the gain of all who love the best hardy flowers. Among the numerous species of merit which are not so common as they ought to be is A. narcissiflora, a plant which is rather widely spread in nature, and which varies considerably in some of its characters, yet yields hardly any forms which may be regarded as flowers to be despised. It is very frequent throughout the European Alps and in several parts of Asia and, crossing the Behring Straits, is found in various districts of North America. In every region it is very beautiful. What is generally accepted as the typical plant grows about a foot in height, and is adorned with soft and delightful, fan-shaped leaves and crowned with eight or ten charming flowers of creamy-whiteness, tinged frequently outside with pink and resembling Apple blossom.

The various forms have had specific and varietal titles bestowed upon them. A very delightful one, quite uncommon, is A. n. var. polyanthes, which was introduced simply as A. polyanthes, and which the writer had for many years after receiving it from the late Max Leichtlin, of Baden-Baden. This is a more robust plant than most of the forms, but my plant lacked the pink exterior flushing which is such a fine feature of what I consider the finest forms of A. narcissiflora. This comes from that fruitful field of new plants, Tibet, and extends into Kashmir. A poor form is A. n. var. monantha, which only bears one flower on a stem, and the eastern Asiatic form called A. n. var. demissa is more fluffy and has weaker stems. Farrer describes a Russian form, which I have not seen, as still more fluffy and hairy. This is called Anemone villosissima or A. villosa.

Those who have grown A. narcissiflora for some time are not always prepared to accept Farrer's opinion that its life in our gardens does not exceed six or seven years. I have had plants for a much longer time than that, but Mr. Farrer's statement that plants may damp off is one which suggests care in planting, especially in wet districts, ample drainage being essential and heavy soil to be avoided.

A. narcissiflora is generally easily obtained in pots from nurseries, but it may be raised from seeds, which, however, are sometimes slow of germination.

LYCHNIS LAGASCAE.

IN past days, when the culture of rock plants was not so well understood as now, and when the choice of these was more limited, the Spanish Lychnis Lagascae was looked upon as one of the plants much to be desired, and presenting difficulties in cultivation which required special consideration. These difficulties have largely disappeared, and the fact is that this Lychnis is not among the plants which are in the front rank of alpines, and that it may be left out of any garden without deep regret. It was, and may still be, frequently lost in winter when on the level parts of the rock garden, and it came to be considered that it was only satisfactory when in the chinks of a wall garden or planted in the vertical crevices of the rock garden. In such positions certainly success generally attends the effort, and the writer has seen some good masses of L. Lagascae under such conditions In wet districts and where there is not ample drainage, such treatment is to be advised, but in parts of the country with a moderate winter rainfall, and where the soil is thoroughly drained, there need be little prospect of failure. Still, when one remembers that this Lychnis is found in the crevices in the Spanish cliffs, it is obvious that the wall garden or the chinks of rock work will present the most congenial conditions for its successful growth.

When happy, it forms a small mass of straggling growths, with blue-grey leaves, four or six inches high, and these produce, all the summer through, a number of small, starry flowers of a more or less faint carmine colour. This sounds even more attractive than the reality, for it must be stated that the whole effect is rather disappointing, reminding one of some mediocre annual. It loves a sunny place and, with perfect drainage, it should flourish. It comes easily from seeds, and it may also be propagated by cuttings. I have not seen any variation among seedlings, but this is quite probable and forms of superior habit or colour may be found. *S. Arnott.*

ROSE GARDEN.

ROSE RODHATTE.

I CONSIDER this Rose to be one of the best varieties in the group of dwarf Polyantha Roses suitable for bedding purposes, and it is an ideal variety for furnishing large beds.

It is a strong grower, has splendid green stems and foliage similar to that of the Tea Rose, and the blooms are deep cherry-red in colour, semi-double, and very suitable for cutting. In a large bed of it planted four years ago I have never seen any signs of mildew.

Rodhatte commences to bloom early in June and continues to do so until the end of September, the flowers retaining their colour well; when the bed is in full bloom it is extremely effective and is noticeable from a distance. I think this would be a very valuable variety for massing in public parks.

Edith Cavell, another of the dwarf Polyantha varieties, is a good bedding Rose which is now grown extensively. In foliage and bloom it takes after Crimson Rambler; in fact, it might almost be called a dwarf Crimson Rambler, but it has one fault—it does not keep its colour well.

Another good bedding Rose of this section is Else Poulsen, also grown quite frequently and resembling R. Rose Orleans, but for continuity of blossoming, general effectiveness and freedom of growth there is none which, in my opinion, surpasses R. Rodhatte. *David D. Robertson.*

GARDEN NOTES FROM SUUTH-WEST SCOTLAND.

WOULD that Fatsia japonica, that opulent cousin of our native Ivy, could be induced to flower a month earlier than it does. In southern England it may make its display in October, but in our more northerly latitude November is the month when it should be at its best, well set with great panicles of bloom like carved ivory. It was distressing to see these marred by a few degrees of frost early in the month; but the shrub is well worth a good place, were it only for its noble foliage. I measured one of its great palmate leaves this morning—nineteen inches by seventeen inches; but when Mr. Bean wrote sixteen years ago that Fatsia bears "about the largest leaves of any hardy evergreen," Rhododendron sino-grande had not yet revealed its dimensions to British gardeners. The leaves of that species are sometimes three feet long; but perhaps it may not be accounted hardy in all parts of our island.

Billardiera longiflora deserves to be far more generally known and grown than it has been hitherto. As a native of Tasmania, it may be reckoned of doubtful hardiness, except in the milder parts of our island; but in my experience it never flinches from frost when allowed to ramble over a wall. As a climber, it requires support of that kind; and now, in mid-December, it is a beautiful object, its slender branchlets being thickly hung with shining purple fruits. Unlike many berry-bearing plants which vary their display in alternate seasons, Billardiera never fails to yield a full crop of its fruits, which in shape and colour are in such striking contrast to the slender, dingy yellow flowers which precede them.

We have never succeeded here in keeping Daphne Cneorum. which is certainly one of the choicest members of a very charming family. We have given it lime and withheld it; the result has always been the same; the plants flower well for a year or two, then begin to dwindle and ultimately disappear. I would be grateful for advice about its treatment. Would it relish moraine conditions?

If these notes should reach the eye of a generous Irish lady, who some years ago introduced me to the variety of Prunus subhirtella, named autumnalis, and gave me a plant thereof, she may care to hear that it has grown well and is now, in mid-winter, a very pretty object, its slender branches wreathed with small, white flowers. These, no doubt, will be destroyed by the frost which is pretty sure to follow the long spell of mild weather we are having; but they will be succeeded by others, for this bush possesses an inexhaustible reserve of blossom, continuing to flower on every favourable opportunity until far on in spring.

I have read and heard complaints about the unsatisfactory behaviour, in some places, of the beautiful white variety of Colchicum speciosum which was raised by Mr. Backhouse, of York, some five and twenty years ago. Mr. E. A. Bowles, in his useful handbook on the genus, describes it as requiring somewhat more attention than the ordinary form, and recommends replanting the corms every second year. That must depend upon soil and climate. Here, although the white form does not spread in grass so freely as the common and highly-coloured forms, it increases rapidly in garden soil. Each of three corms, for which I paid a lavish price when the plant was a novelty, have grown into clumps like those shown in the photograph sent herewith (Fig. 235), and have given many offsets to be planted elsewhere. *Herbert Maxwell, Monreith.*

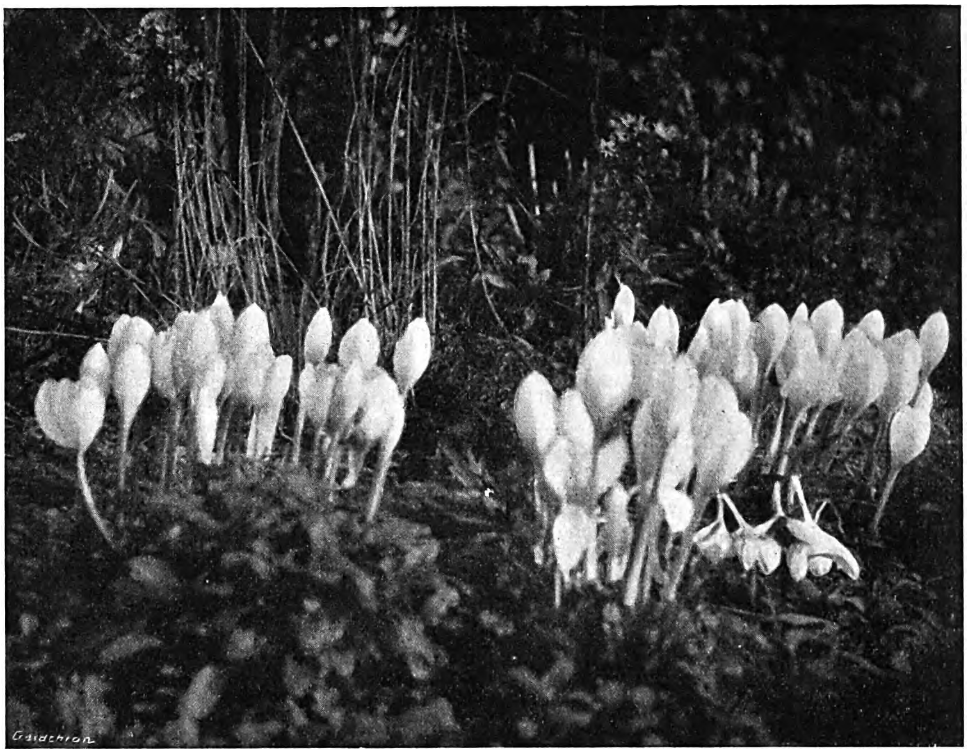

FIG. 235.—COLCHICUM SPECIOSUM VAR. ALBUM AT MONREITH.

NOTES FROM A WELSH GARDEN.

A GARDEN containing a considerable area of woodland, with running water, owes much to its Ferns, and at no season are these more delightful than in winter. One may miss many of them, but even some of these retain until spring the russet and tawny hues of their faded fronds, hues which are responsive to almost every change of light and humidity, and which ensnare the fugitive crystals of the hoar frost with an even more cunning artifice than the evergreens. Perhaps the Bracken, pest that it can be, is still without a rival as a glade Fern, whether we regard its stateliness and stature in summer, the autumn colour it wears with such peerless grace. or the rusted fronds with which it covers the woodland floor in winter.

Growing as they so often do in close company, the Male Fern (Nephrodium Filix-mas) and the Lady Fern (Athyrium Filix-foemina) are apt to lose a little of their respective distinctions in the height of summer, yet there are few hardy Ferns of similar nature which show such a marked difference as do these at this season. The reason, of course, is that while the Lady Fern is extremely susceptible to frost, the fronds becoming brown and crumpled often so early as October, those of its companion are not only evergreen, but singularly hardy. If the enormous shuttlecocks of the Male Fern, which along my little stream have exceeded four feet in height, lack the elegance of those of "the lady," one cannot be too grateful in mid-winter both for their defiant green and handsome poise and that contrast which they exert among the ruddy browns of their fallen comrades.

Another big Fern which is always a striking object in the winter garden is Aspidium (Polystichum) munitum, which will often exceed the Male Fern in stature and make a dense mass of fronds four or five feet across. It is this Fern which is often such an impressive feature in the forests of north-west America, but it is perfectly hardy here. The hard and glossy evergreen fronds remain for several years, the older ones being a deep bronzy-green, especially when much exposed. This noble species is naturalised at Ro Wen, but is not very generous with its self-sown progeny. The Scolopendriums are also at their best just now and, with the Blechnums, should continue to prove their great value in the woodland until spring green comes in again. Hart's Tongues do not make the splendid growth in this valley that they do on the limestone—in Anglesey, for example—and for the same reason, presumably, their seedlings seldom occur where there is any prospect of their "making good." One may find a hundred infant Hart's Tongues on a square yard of mortared wall where they have no possible chance of maturing, but never a single one in the rich, moist soil by the brookside in which transplanted specimens do so well.

Among the wall or rock-garden Ferns which are particularly happy at the moment is Ceterach officinarum, happy as the Ramondias with which it associates so delightfully. This unique little Fern, however, which was the original owner of the generic term, Scolopendrium (thus offering one a hint as to the application of that name), is extremely shy in naturalising here, nor is it at all common in the wild state in this locality. The creeping, mat-forming, Lomaria alpina is also a dwarf species which cannot be passed by at this time of year, for its low, dense masses of dark green, bronze-tinted, overlapping fronds are always a refreshing sight. This little Fern is indestructibly hardy in spite of its Antipodean origin, so hardy and robust indeed, that it must not be planted without due allowance being made for its spreading nature. It makes a useful and appropriate carpeting for the rather thin-habited and rambling L. procera, a hardy evergreen New Zealander, three feet tall, and a distinctly beautiful species for a wind-sheltered spot.

Gaultheria nummularioides is a first-rate plant for associating with Ferns, and it rarely looks better than it does to-day. Nor will anyone with winter foliage in view omit to plant, and plant freely, Cyclamen neapolitanum, which is well worth growing for the exquisite form and colouring of its leaves alone. Corydalis ophiocarpa and C. cheilanthifolia are not less attractive in their own way, the elegant lace-like foliage, especially of the former, developing in autumn charming and delicate shades of bronzy-yellowish-green with a sheen of lavender-blue.

In spite of an unusually mild, if wet and windy, autumn, Erica darleyensis is unusually late in flowering this season. November usually brings the first of its cheerful rose-pink blossoms, but here we are in the middle of December and not a bud is yet showing colour. That excellent foliage Heath, Calluna vulgaris var. cuprea, usually so effective at this season in its glowing masses of bright yellow and ruddy-bronze, was entirely destroyed by frost last winter. But the Heath slope never loses its interest and charm. The latest of the Cornish Heaths are still giving colour, and to the infinite diversity in the gentle tones of green which pervade the various groups may be added the charm of the dried flower heads, which range from an almost white ashen-grey to fawn and tan, cinnamon and rust-red. But this winter-colouring of the Heaths is going to meet a serious rival in the foliage tints of the dwarf Rhododendrons, once the colonies of these fill up. *A. T. Johnson, Ro Wen, Conway.*

TREES AND SHRUBS.

ZENOBIA SPECIOSA.

Although Zenobia speciosa was introduced from the eastern United States so long ago as 1801, it is only during comparatively recent years that the value and decorativeness of this lovely Ericaceous shrub have received recognition, and even now it is not so widely grown as it deserves.

It is a deciduous or semi-evergreen shrub of loose habit, the slender, smooth growths attaining a height of three feet or more. These are furnished with glossy, fresh green leaves, oblong-ovate in shape, pointed or rounded at the apex and tapering at the base, up to two-and-a-half inches long and with shallowly-toothed margins.

The large, Lily-of-the-Valley-like flowers are very attractive, for they are borne in pendent clusters of four or five on slender stalks from the axils of the leaves on the upper portions of the growths of the previous season. The flowers are pure white, bell-shaped, with five shallow, slightly recurved lobes.

To secure the full beauty of this shrub, the flowered growths should be cut back so soon as the blooms have faded, the flowering season being during the latter part of June and early July.

Beautiful as Z. speciosa is, it is even surpassed in attractiveness by its variety pulverulenta, given by some authorities as a distinct species. It agrees with Z. speciosa in all the chief characteristics, the only difference being—and herein lies its superiority, so far as decorativeness is concerned—the young shoots and foliage are furnished with a mealy, bluish-white, waxy covering which, combined with the white, waxy flowers, produced even more freely than in the type, imparts to the whole plant an air of refined charm. Cutting back the flowered growths is even more important with Z. s. var. pulverulenta than with the type, as only by such treatment is a plentiful supply of young growths assured.

There is also a variety called L. s. var. quercifolia, stated to be a curiosity, with the margins of the leaves shallowly lobed and waved.

Zenobia speciosa flourishes in peaty soil and may, together with the variety pulverulenta, be employed very effectively in light, open woodland. *M. W.*

THE GENUS PRIMULA.

(*Continued from p.* 491.)

URTICIFOLIA (Maxim.). Nettle-leaved P. (Souliei).

A delicate and beautiful species with tiny tufts of smooth, flaccid, membranous leaves with broadly oval, blunt blades, gradually tapering to very broadly winged stalks, in all about half-an-inch long; margins very deeply cut into lance-shaped-oval, pointed teeth. Flower stem somewhat flaccid, half- to three-quarters-of-an-inch tall, bearing an umbel of one to three rich pink blossoms. Corolla about five-eighths-of-an-inch across, with broadly heart-shaped, notched lobes; tube cylindrical, about twice as long as the calyx. *Gard. Chron.*, 1915, Vol. LVIII, p. 323, Fig. 114.

Grows in damp crevices in limestone rocks, frequently in cool, moist moss, in positions facing north, on the mountains of western Kansu, in north-western China, at very great elevations above sea-level.

Culture: It should be grown in peat, limestone chips and chopped Sphagnum-moss, in a cool, moist spot in the rock garden, with protection from damp in winter.

VAGINATA (Watt). Sheath P. (Cortusoides-Geranioides).

A small-flowered, dwarf, deciduous perennial species from the eastern Himalayas with a woody rootstock which produces a sparse tuft of rounded leaves about five-eighths-of-an-inch across, arch-shaped at the base, borne on slender, rounded stalks about five-eights-of-an-inch long, dilated, and sheathing at the base; margins divided into seven or more rather obscure lobes; both surfaces more or less smooth or downy. Flower stem smooth, slender, two to four inches tall, bearing an umbel of three to six lilac blossoms on stalks of varying length. Corolla about three-eighths-of-an-inch across, with very broadly heart-shaped lobes which have two to four large, sharp teeth at their tips; tube cylindrical, longer than the calyx, with a ring in the mouth.

This species grows in shady places, in clefts in rocks, and is apparently confined to the neighbourhood of Laghep, in the Sikkim Himalayas, at about 10,000 feet above sea-level.

Culture: It should succeed in friable loam and leaf-soil, in a cool, damp, shady spot, with protection from severe frost and damp in winter.

VALENTINIANA (Hand.-Mazz.). Valentine's P. (Amethystina).

A handsome, dwarf species with very deeply tinted blossoms. The short, thick rootstock is clothed with broadly oval, sharply tipped, rigid scales about half-an-inch long; the tufts of pale green, rigid leaves have egg-shaped blades tapering to obscurely winged stalks, in all three-quarters- to one-and-a-quarter inch long; margins entire or undulately toothed; upper surface pale green, pustular, underside pale, thickly dotted with pitted glands. Flower stem slender, one inch to three inches tall, bearing one or two dark or deep cherry-red, nodding blossoms, on stalks up to half-an-inch long. Corolla fleshy, broadly funnel-shaped, about half-an-inch across, with rounded, undulate, entire or cleft lobes; tube cylindrical, about as long as the calyx. Flowers in June and July. Not in cultivation.

This species is found in open alpine meadows, on the mountains of north-western Yunnan, near Buschao, also in south-eastern Tibet, on steep slopes in dwarf alpine turf at 13,000 to 15,500 feet above sea-level.

Culture: Peat, loam and limestone chips, in an open, moist, well-drained spot, with protection from damp in winter, are the conditions indicated. *A. W. Darnell.*

(*To be continued*).

NOTICE OF BOOK.

Gardening in the Southern United States.

While this book* is primarily intended to help cultivators living in the warmer parts of the south-eastern United States, it contains a good deal of information of a general and, what may be termed, theoretical nature which will make it useful to anyone seeking for the underlying principles that govern the practice of horticulture. These principles are in essence the same in whatever climate the cultivators lot may have been cast. The chapters dealing with such subjects as climate, soils, drainage, soil acidity, treatment of wounds in trees, propagation, fertilisation of soils and so on, have a general application and are very well written.

In regard to the subject of soil fertilisation, a description is given of a method of feeding trees which is very interesting and seems worthy of trial here. We all know the difficulty of feeding trees growing on lawns. The best way, of course, is to strip off the turf so far out as the roots extend, prick over the surface soil and apply a six-inch dressing of farmyard manure. But the unsightliness this method involves, even if only temporary, makes it objectionable in many places, especially where the ground so treated is visible from the living rooms of the house. This book describes a plan which, although it may not be as helpful to the tree as the one just referred to, does bring plant food directly to the roots without materially disfiguring the lawn. The author calls the process "plugging." A light steel bar sharpened at one end is thrust into the ground and twisted about so as to make a funnel-shaped hole one foot or more deep and three or four inches wide. This is then filled with fertiliser. Bone meal is recommended, which is very safe and lasting, but slow in action. Dried blood or guano would, perhaps, be better. The holes are recommended to be three to four feet apart over the root area, but for large trees it is of no use making them within several feet of the trunk.

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* *Gardening in the Lower South*, by H. Harold Hume. New York: The Macmillan Company.

The book is well illustrated by reproductions of photographs. Especially attractive is one of the Royal Palm (Oreodoxa regia), showing an avenue in Florida of this noble tree almost rivalling in stateliness the famous one at Rio de Janeiro. It is a well-written work and should prove a popular book in the south-eastern United States, and even in parts of the British Empire with a similar climate.

WOODLAND GARDEN.

GALAX APHYLLA.

This is not a plant that will excite the senses of those who look for colour display, but a humble woodlander whose claims for attention are exceedingly modest. Yet, for associating with Shortias, Pyrolas, hardy Ferns and the like it is one that few would care to be without. Indeed, it is so much easier and more permanent than many of its companions of the above description that what it may lack in quality it more than makes good by its perennial good nature.

Galax aphylla, which came to us from northwest America in 1786, makes a slowly widening tuft of deep green, leathery leaves which are roundly heart-shaped, highly glossed and held erect on stalks some eight inches or so in length. This foliage is evergreen and not less delightful in the winter garden than it is when freshening with new leaves in spring, or when it falls into line with other autumnal subjects by assuming rich tints of crimson and bronzy-purple. About midsummer the flower spikes are thrust up to the height of a foot, erect and finely-tapered racemes crowded, with small, milk-white blossoms, and these carry-on for several weeks.

G. aphylla will grow in any cool, vegetable soil. While it is not out of place in the shadier parts of the rock garden or the mixed border it is never, I think, quite so delightful as in some woodland bottom where there is leaf-mould and stones for its underground runners to ramble through. It is perfectly hardy, does not "run" unduly, and is by no means difficult to establish, even if a little leisurely at first. There are, it is stated, two forms, one having larger leaves than the other. All I know of them is that plants received from nurseries labelled G. a. var. macrophylla have slightly smaller leaves than the one I have always regarded as the type. *J.*

BROWN ROT OF APPLES.

It appears that the dry weather during the summer of 1929 was beneficial in checking the spread of fungus diseases—and both Apple scab and Apple mildew have been kept down to a considerable extent by the dry conditions. This is to be expected, in view of the relation between the amount of moisture in the atmosphere and the development of such fungi. It is known that the Apple scab fungus requires almost continuous wetting of the foliage for some time for its successful spread, and almost all fungus spores require a degree of humidity for their germination.

Despite the dry summer, however, the fungus, Sclerotinia fructigena, where present on trees seemed to have no difficulty in spreading. This fungus causes the well-known brown rot of Apples, both on the tree and later in storage. One of its chief methods of surviving the winter months is by means of the so-called mummied fruits. These fruits are Apples which have been destroyed by the disease, and ultimately reduced to small, dry, shrivelled bodies. They will often remain on the tree through the winter, and if not removed will produce, on the approach of summer, a crop of spores capable of infecting the young fruits. In the examination of trees for disease symptoms during the past summer, the importance of removing these "mummies" was clearly manifested.

Careful examination of any spur carrying diseased fruits revealed the presence of a mummy either on the spur or on a near-by branch, often almost hidden by the foliage. The accompanying photograph (Fig. 236) shows a spur taken in August from a tree of the variety Scarlet Pearmain. The mummy (a) was the source of infection, causing the decay of the other fruits. Of these, (b) was almost completely rotten, while (c) had already become infected. In such cases the disease was spreading from these mummies as initial points of infection at a time when no rain had fallen for weeks and when most of the varieties were far from ripe.

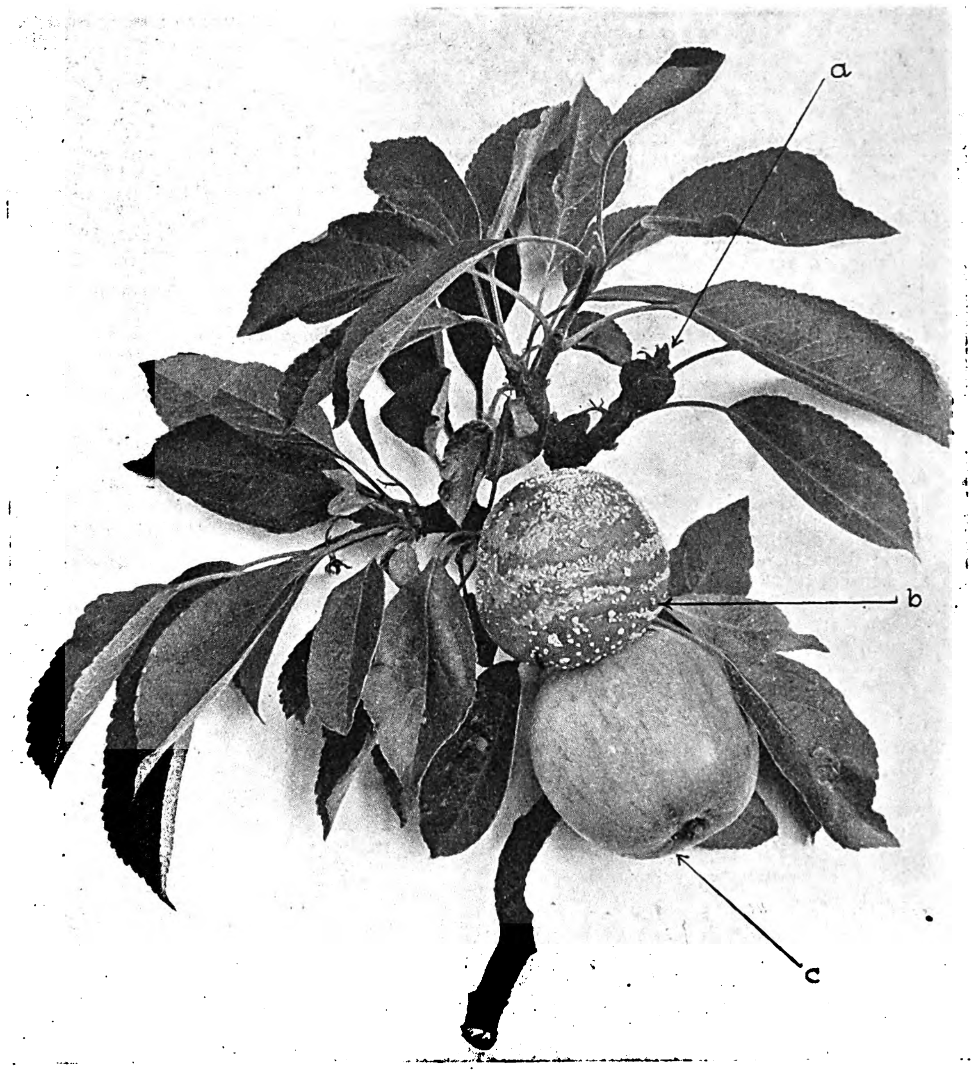

FIG. 236.—BROWN ROT OF APPLES.

It is evident that much loss can be suffered by neglect of this one point of removing and burning, if possible, every mummy from the trees. As the fungus is known to hibernate also in the spur or even the branch of some varieties, infected spurs and all dead wood should be cut out as an additional precaution at the time of pruning. *D. E. Green, M.Sc., Royal Horticultural Society's Gardens, Wisley, Surrey.*

NOTES ON INSECT PESTS.

Many of the common insect pests of fruits and vegetables were not nearly so common last summer, in many parts of the country, as they were the previous year. A number of orchards that were not sprayed last winter with a winter wash were reasonably free of insect pests the following spring and summer, and such familiar insects as the rosy Apple aphis, the Hop-Damson aphis, the green Rose aphis, the black fly of Broad Beans, and the Cherry black fly, were not noted in many plantations or gardens.

It is generally considered that very cold spells of weather during February and March destroy many of these insects in their winter stage, and thus the cold weather theory is put forward to explain the absence of pests this summer. However, the cold weather of the latter part of February and March did not appear to affect the winter stages of insect pests to any marked degree, and it was noticed in many instances that the eggs developed in a normal manner in the spring in spite of the cold spell of weather earlier in the year.

The writer is of the opinion that the eggs of many of the common pests were not present on the trees last winter, and this fact alone would account for the scarcity of these pests during spring and summer.

The eggs of Hop-Damson aphis, the winter moth and the Apple sucker were required for experimental purposes last winter, and after searching for specimens on Apple and Plum shoots in neglected plantations, for a number of days, only a very few scattered eggs were found, and the opinion was formed that the egg population of these insects was very much below the average.

Now, if there were any correlation between the weather and the absence of insect pests last summer, it would seem more reasonable to suggest that the weather had some influence upon the insects, at the period when they were depositing their eggs upon the trees, namely during September and October. Unfortunately, the position is just the reverse this winter, and many of the common insect pests are more numerous than ever, especially the insects which attack fruits.

The eggs of the Apple sucker, the green Apple aphis, the Hop-Damson aphis, the winter moth and the fruit tree red spider, can be seen without any difficulty, even by the layman, in almost every plantation. The eggs of the winter moth are exceptionally common in many plantations in Kent.

In view of the fact that the eggs of so many pests seem to be abnormally prevalent this winter, growers and gardeners are reminded that the winter spraying season has commenced, and that many of the troublesome pests of fruits may be destroyed by spraying the trees now with a good brand of tar-distillate winter wash. *A. M. Massee, Acarina, East Malling.*

HEDGES.

HEDGES serve many purposes, such as backgrounds for herbaceous borders, as shelters, or again, to divide one part of the garden from another. No matter what purpose the hedge is to serve, or the kind of plant to be used, it is wise to remember that the plants will occupy the site for a long time; therefore the ground should be thoroughly prepared and enriched, if necessary, before the hedge is planted.

There are many shrubs suitable for forming hedges, but the selection will depend a good deal upon the nature of the soil, the purpose of the hedge, and the amount which the intending planter is prepared to spend. For evergreen hedges, Yew and Holly are undoubtedly the best, for although slower in growth than many others, when fair sized plants are used they make a good hedge in a few years' time. If a Holly hedge is to be made, defer the planting of this until the late spring; Yew may be planted any time after the end of January, if weather conditions permit. Cupressus Lawsoniana and C. L. var. Triumph of Boskoop make good hedges in a comparatively short time; the latter is of a glaucous blue colour and is very attractive during winter. Thuya Lobbii is a quick-growing evergreen of a pleasing shade which withstands clipping well, and soon forms a dense screen; incidentally, this is used extensively and with great success as background hedges for herbaceous borders in the gardens at Glamis Castle. Cupressus macrocarpa, although rapid in growth, is not to be recommended as a hedge plant, as it has a habit of dying out suddenly, leaving unsightly gaps in the hedge within a few years. For low or medium-sized hedges of an evergreen nature, Lonicera nitida is in great demand at the present time. This plant does well on many soils and makes a pleasing hedge, but it certainly is not a success for this purpose on the light, hot soil of Wisley.

Nothing is more pleasing and permanently attractive than Lavender, with its grey foliage and spikes of flowers, if only a low, dividing hedge is required. Deciduous hedges may be formed by Beech, Hornbeam or Myrobella Plum, among others. Hornbeam has the advantage of retaining its brown leaves farther into the winter than the Beech. Myrobella Plum is vigorous growing and soon makes a hedge that is practically impenetrable. Delightful hedges may be formed by using various Roses, some of the Penzance Briars being especially useful for this purpose, also several varieties of the Wichuraiana type, but they call for more care than ordinary hedge plants. *R. F.*

INDOOR PLANTS.

CESTRUMS.

NOTHING is more delightful to the eye during these dull cold days of the year than a well-flowered bush of this cool greenhouse Solanaceous subject, often known as Habrothamnus elegans and a native of Mexico.

The rather small, purplish-red flowers are borne in enormous numbers in dense terminal cymes, the weight of blooms giving each spray a rather pendulous habit.

The leaves are entire, ovate-lanceolate in shape, with the under surface covered with a fine down, as also are the young stems.

This Cestrum is ideal for planting out in a border in a cool house or corridor, where a winter temperature of about 45° is maintained. It should be placed against a wall or pillar, where sufficient wires or other supports are available to allow the plant to climb, as it is of a semi-climbing nature.

Cestrums delight in a free, rich soil, both when planted out or grown in pots. When the latter method is adopted, space for the roots should never be stinted.

They are propagated by means of cuttings taken during August and potted on when sufficiently well rooted.

Cestrum aurantiacum, from Guatemala, has orange-yellow flowers rather larger than those of C. elegans, the five-pointed edge of the flower tube being turned back considerably. Both the stems and foliage of this beautiful species are glabrous, and the margins of the oval leaves are somewhat undulated. This Cestrum is very suitable for growing as a pot plant.

C. Newellii is a variety of C. elegans and is even a bigger favourite than the type. The flowers are hairy, bright scarlet in colour, with an orange reverse to the turned-back lip of the tube. The leaves are a very pleasing shade of bright green and contrast to a marked degree with the blossoms.

C. Newellii is best grown against a wall. *F. H. Wright, University Botanic Garden, Cambridge.*

NEPHTHYTIS PICTURATA.

NEPHTHYTIS picturata is the most decorative of the few species in this genus of tropical Aroids. It is an ornamental foliaged subject, introduced from the Congo about forty years ago. The specific name picturata suggests its general appearance, the raised, upper surface, between the dull green sunken veins of the large, hastate leaves being conspicuously feathered and blotched with white.

N. picturata grows about two feet high and, spreading by means of stolons, which produce growths at intervals, eventually forms a dense clump of foliage. By reason of its spreading habit, it is seen to best advantage when grown in receptacles of somewhat large dimensions, pots or half-pans from eight to ten inches in diameter being suitable. For its maximum development, it requires a considerable amount of heat and moisture during the growing season, and it should be potted in a coarse, open compost of fibrous loam, leaf-mould and sand.

HEMIGRAPHIS COLORATA.

THIS prostrate growing tropical herb, with foliage of an unusual combination of purple and silvery-grey, makes an uncommon edging to the plant stage in a warm house. Although allied to Ruellia, a genus containing several showy flowering species, Hemigraphis colorata is disappointing in that the flowers, produced in short, stiff, terminal spikes, are inconspicuous.

The best results with this subject are obtained from fresh stock raised annually from cuttings of the young shoots, inserting several around the inner edge of a small pot and placing them in a brisk, moist heat. So soon as rooted, the cuttings may be potted singly into three-inch pots, which are sufficiently large to carry them through the season. The slender, wiry main stem may grow eighteen inches in length by the end of summer if the cuttings are rooted in spring; it branches freely at the base. The opposite leaves, on long petioles, are about two-and-a-half inches long and two inches wide. *Jonathan Fiona.*

HOME CORRESPONDENCE.

Lonicera nitida.—With reference to Mr. C. Nicholson's enquiry (p. 430) as to the treatment necessary to ensure flowers and berries on Lonicera nitida, this species, as with the majority of the bush Honeysuckles, is very inconsistent in flowering. A probable explanation of its spasmodic efforts is that the flower buds are cut by the severe late spring frosts we experience every year. It has been observed, however, that when a plant makes luxuriant growth the flowers are very sparsely distributed, even in favourable seasons, but a hedge about two feet high, sandwiched between a gravel path and the top of a retaining wall, and apparently fighting for its existence, flowered more freely than any other plant of the species in the garden. Since writing of the beauty and utility of this shrub, I have had the pleasure of visiting Lord Sandwich's gardens at Hinchingbrooke, where, besides some excellent clipped hedges of L. nitida, over seven feet high and four feet through, I was very interested to see some plants trained up wire-netting, which had attained a height of twelve feet, and from their healthy appearance will grow still taller. Mr. Prowting, the head gardener, informed me that the plants were placed there about nine years ago, and by constant clipping he has made one of the most effective evergreen screens possible. *H. A. P., Brampton, Hunts.*

—— Your correspondence on Lonicera nitida seems to me very conflicting and misleading. With regard to the hardiness of it, I consider it quite as hardy as the common Laurel. I have specimens of this evergreen Honeysuckle eight feet ten inches high and quite four feet through, in various parts of my garden, fully exposed. Last winter we had frost below zero. I saw nothing to convince me Lonicera nitida was not "perfectly hardy." A few shoots made after clipping in the autumn drooped, but they soon recovered. The parent plant on the west front of my cottage is quite thirty feet high and the same in width. Other plants are doing equally well on the south and north of the house, and I should have planted it on the east side had it been possible. I clip them quite hard twice a year, and this keeps them neat and very dense, and I propagate my plants by layering, the layers soon rooting and giving good specimens to start with. I have not noticed fruits on the pyramidal plants, but those on the walls often produce them. When in flower, the bees are frequent visitors to L. nitida, *John Butler, RoseCottage, Kidlington.*

The Need of Education for Gardeners.—Your correspondence on "The need of Education for Gardeners" becomes more interesting week by week. The concluding remark by Mr. Mead (p. 450) that "No gardener, through study, and education alone, will ever fathom the practical side of horticulture," shows how far we have wandered from Mr. Kennedy Bell's original letter. Mr. Bell expressly states therein that the "actual theory and practice of gardening" is in itself "a fairly extensive subject," and that only in the winter months has the gardener time for the study of allied subjects. No one with any wits at all would expect to succeed in horticulture without a thorough grounding in practical gardening. Conversely, we must realise no one will ever fathom the practical side of horticulture without extensive study and patient enquiry. Nature does not part with her secrets so easily as that. As one who has been of late years through the mill of both the practice and theory of gardening, I should like to state that the question, in the present day, of suitable theoretical training for young gardeners, turns more or less on the question of accessibility to suitable centres for such training. In or near our large towns, and doubtless some of our smaller ones, the facilities for night classes are ample and every assistance is rendered to aspiring and promising young students. The young gardener who allows a few difficulties of a minor character to stand in the way of attending these classes is most probably of the type whose failure at any subsequent examination is already assured. The same remark applies to any who allow the need for recreation to absorb all their leisure hours. For those, however, in the remote country districts, I would commend the adoption of some such proposal as put forward by Mr. Bain (p. 430) of correspondence courses, to be run either by the Royal Horticultural Society or by the County Horticultural Instructors. It is in these districts, I feel sure that losses of promising material are annually taking place. Only by some such means will the status of our profession be raised, both in financial matters and in public esteem. *George L. Soater, N.D.H.*

—— In these days of change and decay, it would appear that, generally, what was formerly recognised as a "hall-mark" of efficiency, is no longer an asset that, by itself, is of any avail in advancing the "status" of the individual, be he gardener, or follower of any other calling. There must be education, but no one will gainsay that a good education is within the reach of all nowadays; it is obviously not the lack of education that prevails, but rather the application afterwards, or the consistent striving after improvement on the rudiments inculcated at school. It is possible that the importance of a gardener's calling is not sufficiently engraved on the mind of the majority of those who have selected the cult as a means of livelihood. Most assuredly, to my mind, the trend of the public at large is to focus the gardener as a human instrument of insignificant moment. We in the seed trade, as members of a branch of the profession, value the skilled gardener at his true worth, and covertly lament the fact that he is not more universally appreciated—but who is to blame? Servility is not desired by the broad-minded employer, albeit one is constrained to maintain that in too many cases, the gardener assumes the rôle of the brow-beaten serf, who quails at even suggesting anything that should come spontaneously from the practical man, as opposed to the unpractical suggestions of an employer. Right methods should always be insisted on, coupled with that deference due to those in authority; for by such means only will practical wisdom assert itself and hold its own. Education, then, can be applied as a means to an end, for few can withstand that bulwark of common sense, attributable to a correct early training fitly applied. One fully realises that these remarks do not apply to all gardeners, for there are left some gentlemen in charge of the few estates which are yet being kept up, whose positions are unassailable, by virtue of their innate tact and practical wisdom, two attributes that are not always the result of a superior education, but rather that rare gift of sound, stability and doggedness that befits the controller of a large establishment, in many cases, for a long sequence of years, and at the end of it a glorious heritage, which enables him to finish the course begun and continued so long, not by dint of anything but an ordinary education, but by that mastery of practical detail and consistent will-power, coupled with proper respect to those in authority. What our good friend the gardener lacks to-day is not general education, or, indeed, sufficient practical knowledge of his craft to stand him in good stead, but rather sufficient "ego," whereby a greater amount of respect and acknowledgment as assets of consequence, is engendered in the minds of an unappreciative public. With reference to remuneration, is it not conceivable that this may be automatically augmented as a corollary to the persistence of the practical gardener in maintaining his "status" as a qualified member of an ancient and honourable calling. *Albert Upstone, Rotherham.*

—— Good posts for gardeners, non-existent several decades ago, are now available from time to time for qualified men; but it is certain that many of these posts cannot be filled, and held, by the uneducated gardener. Posts in research stations, instructorships in colleges and schools, and under county councils, and such situations as park and cemetery superintendents, head gardeners, gardener-agents and gardener-bailiffs in good private places, nursery managers and foremen (many of whom ultimately become owners of small nurseries), and commercial travellers for the leading horticultural houses, in addition to the posts in the colonies and abroad, filled by Kew, Edinburgh and Wisley, cannot be satisfactorily held by men who have no knowledge of botany, mensuration, surveying, elementary or advanced chemistry, and, what is by no means the least important, a knowledge of book-keeping. I do not, of course, mean that a man should be an expert in all the above-mentioned subjects, but a really good knowledge of one or more of them is, beyond doubt, vitally necessary to the young man who wishes to obtain, and hold, to the satisfaction of himself and of his employer, one of the posts indicated above. I should also have mentioned the inspectorate (horticultural) of the Ministry of Agriculture, where posts are from time to time available for well educated men. Brains are fairly evenly distributed among the classes, whether farm labourers, office workers, or even members of Parliament! But in the majority of cases the financial position of the parents determines whether the lad must leave school at an early age, or enjoy the great advantage of going to a secondary school, and, in some cases, a college. Many of the very clever men of the older generation of gardeners are the sons of country workers, and would have made their mark in any sphere of life, but it was essential that the boy started work at a very early age, to bring a little more grist to the family mill. The chance for these men to become well educated at school did not then exist, but conditions to-day are different, as the county councils, farm institutes, etc., are always ready to hold out the helping hand to the lad who really means to become a good gardener. This helping hand is available right through to the colleges to the really bright lad. I should like to see my future gardener allowed to remain at a secondary school until he attains the age of sixteen years, paying particular attention to botany, mensuration, surveying, elementary chemistry as applied to horticulture, and book-keeping, for the last two years of his school life. He could then proceed to a really good private garden, to a first-class nursery, or to a farm institute for three or four years, not disdaining any work that comes along, and meanwhile attending evening classes or studying some of the many good text books now available at a low cost. Then could come one or two changes to really good places as a journeyman, to acquire a good knowledge of the practice of his profession. No need to worry too much, by the way, about having to do hard work, and the clock should not be watched too closely. Hard work I stress, for I am of the opinion that the lad who has learnt to work hard and conscientiously, has little to fear in the future, provided his health is good. A year or two at either Kew or Wisley would then be of value to the young gardener, both for the excellent concentrated tuition these well-known establishments afford, and for the help they will be as a first-class place to which to refer a prospective employer. By this time the young gardener should have shown the stuff of which he is made, and should have taken, or be about to take, examinations such as his advisors or instructors consider would be of help to him in the future. He should also have made up his mind for which branch of his profession he is best adapted and inclined. For the poor boy, who has to leave school at the age of fourteen years (it will now probably be fifteen years) and who has no chance of attending evening classes, please do not despair. There are many good text books available for evening study, and Kew, Wisley or the Horticultural Section of the Ministry of Agriculture would, I am sure, reply to a courteous request for advice from a young aspirant for knowledge. The Royal Horticultural Society's Examination for the National Diploma in Horticulture need hold no terrors for the skilled practical man, who has tried to study the science of his work. At the N.D.H. Examination, as a case in point, it may be found that the man who can use tools, dig, pot and prune, will pass ahead of the man who can write about it, but cannot carry out these operations to the satisfaction of the very capable practical examiners appointed by the R.H.S. This I know from personal experience. My knowledge of botany was, and I am afraid even now is, not by any means such as I would have liked. I, however, managed to wriggle through the N.D. Hort. Examination, and the sympathy and consideration of Sir Daniel Hall, the examiner in this particular subject, will be a pleasant memory to me for many years. Keen young gardeners need not fear their examiners. If rather afraid of the N.D.H. examination, the aspiring young gardener could try the R.H.S. General Examination in Horticulture, held in March of each year. This examination comes just at the right season, after a winter's evening studies, and before the busy outdoor period. It is beyond doubt a real test of ability, and there is no great harm done if a First Class Certificate does not come at the first attempt. To once more cheer up the lad who thinks he has no chance, owing to the lack of facilities for special tuition, the writer took this examination after one winter's fairly close evening study, with the assistance of no organised classes other than a correspondence course, and yet was placed at the head of the pass list for his year; too late in life, alas, to take up the scholarship, tenable at Wisley, which goes with the highest marks at this annual examination. *Henry F. Maidment, Crichel Estate Gardens, Wimborne, Dorset.*

Tomatos for Winter.—Your readers who grow Tomatos for winter fruiting may be glad to know that Cuthbert's Scarlet King is an exceptionally fine variety. We sowed seeds in July, 1929; the seedlings were pricked off singly into sixties and then transferred to forty-eights, where they remained until each plant had set one truss of fruits, then they were potted into sixteen-sized pots, and stood out in the open until the end of September, when they were placed on shelves in fruit houses. Up to the time of writing (December 16), we have picked a fine lot of fruits, and there are many more to come. Scarlet King has all the qualities a good Tomato should have; it is a free-cropper, the fruits are large and of good shape, and of excellent flavour. *G. Spence, Walhampton Gardens, Lymington.*

Surplus Potatos.—The valuable article on the surplus of Scotch Potatos, in your issue of December 7, raises a number of interesting questions. Potatos, as you state, are now down to 30s. a ton, and at my country cottage I pay in the local shop sixpence for 5 lbs., which works out at over £13 a ton. Potatos have varied between about 18s. a ton and £14 a ton since the war, and this vacillation of prices is the curse of the industry. There are four interlocking problems. The first is to secure a standard price at an economic level, a figure which is, I think, between £5 and £6 a ton; the second is to reduce the cost of distribution; the third, to prevent dumping from abroad; and the fourth (almost peculiar to Potatos and other vegetables) to secure a market for surpluses. For all these purposes we need a pool or a distributive trust, such as exists in the coal trade in Germany to-day. Such a trust could standardise prices, if it were supported by a national policy, such as has been recently established in the New Zealand Wheat trade, where the farmer gets a first look-in at the home market at a fair price, and the deficit only is acquired from Australia. Such a trust should also, by the savings in distribution, secure a fair price in the shops, say, 1s. to 1s. 2d, a stone. Then comes the question of surpluses. I found that East Poland, where I assisted to reconstruct agriculture after the war, was provided with factories where surplus Potatos were converted into alcohol. We might provide such factories or, alternatively, we might, as is done in Ireland, make flour and admirable cakes from Potatos. A somewhat similar problem arises in almost every branch of agriculture, and needs to be dealt with on similar lines. Standard prices, organised distribution, limitation of imports and means of dealing with surpluses, are the needs. Methods of dealing with all these problems are to be found working in other countries, and have been investigated by an association. The time is, perhaps, ripe for action. The Central Chamber of Agriculture is now considering the whole problem, and no organisation is better able to deal with it. *Montague Fordham, Council Secretary, Rural Reconstruction Association.*

SOCIETIES.

HORTICULTURAL CLUB.

One of the most successful meetings of the Horticultural Club was held on Tuesday, December 10 when, following the monthly dinner, Mr. F. Kingdon Ward gave an address on his recent plant-collecting expedition.

The dinner and lecture were held in the new Windsor Castle Hotel, Wilton Road, Westminster, opposite Victoria Station. Mr. Gerald Loder presided, and over sixty were present at the dinner and the company was swelled later by several who came to the lecture only.

Mr. F. Kingdon Ward's slides included maps of the districts he explored along the Assam frontier between Assam and Thibet.

The vegetation of the district has a wide range, from a tropical to an arctic flora, for the climate varies according to the altitude, and it was in the higher, open country that the most interesting plants were found. Rhododendrons were especially plentiful, many of them epiphytic on trees, and it is only on the upper branches where the Rhododendrons get plenty of light, that they appear to flower at their best.

The members were especially interested in the pictures of the natives, the hill and river scenery, and the plants growing in their natural habitats. Photographs of primitive bridges, made usually of Bamboo, were very remarkable, especially of a circular one made with rings, which Mr. Kingdon Ward said he crossed to the middle, but no further. His trouble with the native carriers and his cutting of a bridge to prevent them deserting him, showed the difficulties and dangers that are the lot of the plant hunter in such wild parts. However, he prevailed, and was able to find many new plants of interest. The whole country is very sparsely populated—one or two inhabitants to the square mile—for which famine is responsible. Famine follows the flowering of the Bamboo, the seeds being eaten by rats that multiply in swarms, and when the food from the Bamboos is exhausted the vermin turn to the crops of the natives, devouring their means of sustenance: thus whole villages may be wiped out.

In reply to a question, the lecturer stated that Meconopsis Baileyi is always a beautiful clear blue in nature, and its dingy colour in gardens he attributed to "morganatic marriage."

Lord Swathling, in proposing a vote of thanks to the lecturer, said all present had enjoyed a most delightful evening and learned much from the delightful address and pictures given by Mr. Kingdon Ward.

BUCAREST FLOWER SHOW.

The Annual Show, which was again held in Carol Park, on November 7 to 11, was very disappointing on the first three days owing to the rain, which is very unusual at that time of year in Roumania, but Her Majesty Queen Marie, who promised to open the show, arrived in good time, with the Bishop of Roumania, Mr Sarateanu, the new Regent; Mr. G. Maniu, the Prime Minister ;. Mr. Mihalacha, Minister of Agriculture; the Princess Bibesco and many others.

The President of the Society, Mr. Charles Farando, who takes a great interest in the function and works hard to make the show a success, encounters many difficulties, as very few private gardens afford assistance, therefore it is chiefly left to the nurserymen to fill the show; there is, however, much scope for the further development of gardening in Roumania. The Society deserves more help, but it was very pleasant to hear Mr. Mihalacha state that he considered the time had come when the State should help to encourage gardening in Roumania, and he would do his best in that direction, as he was pleased with what the Society was doing.

As a whole, the show was very interesting and arranged with great skill, and thanks to the weather on the fourth day, which was perfect, the show was crowded to its utmost.

Next July, members of the Society are hoping to visit Belgium and London to see various gardens and to gain knowledge of what might be done in Roumania, so it is hoped that any Society they come into contact with will show them what can be done where there is more skilled labour. The Society is also hoping to hold a spring show in 1930.

There were some excellent groups of Chrysanthemums, Carnations and Roses, chiefly from nurserymen and seed merchants, who made some very fine exhibits. The chief competitors were Messrs. Farando and Sons who, as usual, stood first for large blooms of Chrysanthemums, well arranged in green turf, in large vases and hanging baskets; the chief varieties were Pink Turner, Edith Cavell, Yellow Turner, Daily Mail, Mona Davis and Ville de Paris. Messrs. Florian Bros. were awarded a Gold Medal for a group of Chrysanthemums massed with Primulas. Mr. Constantinescu set up a fine group of Roses, all new varieties, and well arranged. H. H. Prince G. V. Bibesco (gr. Mr. J. W. Funge), Mogosoea, was again awarded the premier prize and Gold Medal for hot-house Grapes, the varieties including Muscat of Alexandria, Lady Downes, Madresfield Court, Alicante and Maréchal Gallien, arranged with Single Chrysanthemums.

Messrs. Scheidegger Bros., who filled the centre pavilion with large Chrysanthemums, showed many new varieties, and also had a large group of Roses in splendid condition for the time of year. Mr. Dumetrescu, who put up a collection of Cacti, was awarded a Bronze Medal. H. H. Prince B. Stirbey (gr. Mr. G. Schnieder), sent a collection of new Dahlias, of very fine colour. The first girls' school of horticulture in Roumania set up a very fine mixed collection of Chrysanthemums and Begonias, while the State Boys' Schools exhibited collections of fruits and vegetables with dried Prunes, Apricots and vegetables in capital condition, which are in great demand here owing to the severe winters. This institution also showed over one hundred varieties of Walnuts, and it was very interesting to notice the different shapes and colours of the Nuts.

The interest of visitors and young gardeners was sustained by a cinema display which showed how the different plants grow from the time seeds or cuttings are put in until they are in bloom; the views included those of various European gardens. *J. W. F.*

PORTSMOUTH HORTICULTURAL.

A very interesting lecture was given before a large attendance of members of the above Society by Mr. A. Cobb, of the Reading University, on December 5, the Lord Mayor, Councillor J. E. Smith, J.P., being in the chair. The subject of the lecture was "The Charm of the English Garden," and Mr. Cobb emphasised the fact that in a general way the English garden was of the landscape type, but that we had introduced many formal styles from the Continent and also, in some instances, designs of an Oriental character, and he made special reference to the Japanese form of garden. The coloured lantern slides provided very fine illustrations of many types of gardens, and there were also many good slides of Roses, Dahlias and other flowers suitable for the embellishment of all types of borders and gardens.

CARDIFF GARDENERS'.

The fortnightly meeting of the above Association was held at The Queen's Hotel, Cardiff, on December 10, Mr. W. H. Pryce presiding. The first item after the usual business had been conducted, was an intimation of the resignation of the Minute Secretary, Mr. F. Folk, who has secured a position at Kew Gardens. Mr. Folk, who is a young and most enthusiastic gardener, has spent a number of years under Mr. H. R. Farmer in the famous Cardiff Castle Gardens, and carries the best wishes of all members with him to his new sphere of activity.

The lecturer for the evening was Mr. S. Wills, the Newport representative, a large number of members attending to listen to his discourse on "Gardening: Past and Present," which proved very interesting. Mr. Wills, by no means an old man, went far back into the old days, and in comparing them with the present, he mentioned the difference in Covent Garden; the great Chelsea show in comparison to exhibitions at the Temple in the old days; the changes in the form of gardening, giving as instances, the vast glasshouses in the Lea Valley and elsewhere; the rock and paved garden; the rambler Rose arches, and herbaceous borders, which were little thought of in the past. He dealt with many kinds of flowers which had been vastly improved during recent years.

After a lengthy discussion had taken place, opened by the veteran gardener, Mr. J. Julian, a hearty vote of thanks was accorded Mr. Wills.

The prizes offered by Messrs. N. Rees for the best five Onions, were won by Mr. W. H. Pryce, first; Mr. M. Hardwick, second; and Mr. Baker, third.

Points were awarded to Mr. Baker, Mr. J. Jones and Mr. Kirby for various exhibits.

READING GARDENERS'.

There was an excellent attendance at the last meeting of the autumn session of this Society, held in the Abbey Hall on the evening of December 16, and presided over by Mr. W. Broomfield.

Instead of the usual type of lecture, Mr. A. H. Gear, Essex Street, Reading, gave a talk on "A Prisoner-of-war's Reminiscences of Gardening in Germany." He gave instances of many events that occurred from the time he entered France to when he was wounded and taken prisoner. After being in hospital for many weeks he was eventually placed as gardener in the gardens of Baumaster Dominity, at Jessinity, and later in the gardens of Baron Von Ohlenburg, Gresse, Boisenberg. He explained the methods adopted in growing Asparagus, Strawberries, salads, Tomatos and Potatos, which were entirely different to those practised in this country.

In the competition for three dishes of Potatos, three distinct varieties, there were six entries, and some excellent sets were staged. The first prize was gained by Mr. A. E. Kirby, Amity Road, Reading; second, Mr. E. Blackwell, Foxhill Gardens, Reading; and third, Mr. F. G. Rabbetts, Bulmershe Gardens, Earley.

ANSWERS TO CORRESPONDENTS.

Grapes.—*G. H.* The Grapes were in such an advanced state of fermentation on arrival that it was impossible to diagnose the trouble. Judged by your brief description, shanking seems to be the cause of failure; the small, pointed berries are seedless. Shanking causes the Grapes to dry and wither at the stalks; sometimes only an odd berry is affected, but at other times the whole bunch may fail. The causes of shanking are many—over-cropping, injury to the foliage, chills or sudden changes of temperature, excessive dryness at the roots, or the roots getting into the cold subsoil. If the roots are at fault, the only remedy is to carefully lift them, and renew the border, using a larger proportion of porous material, such as old lime-rubble, to secure good drainage, and then re-plant them.

Names of Fruits.—*H. B.* Pear Doyenné du Comice; Apples King of the Pippins and Scarlet Nonpareil.—*C. B.* 1, Cockle's Pippin; 2, Landsberger Reinette; 3, Braddick's Nonpareil; 4, Old Nonpareil; 5, Endsleigh Beauty; 6, not recognised; 7, Madame Benoist; 8, rotten; 9, Hacon's Incomparable; 10, Bellissime d'Hiver.—*Altho.* 1, Bramley's Seedling; 2, Braddick's Nonpareil.

Communications Received.—H. F.—J. C.—W. G.—A. M.—R. P.—H. C.

JAN 1 - 19
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THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No 4644

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May 7th, 1929.

KELWAY & SON,
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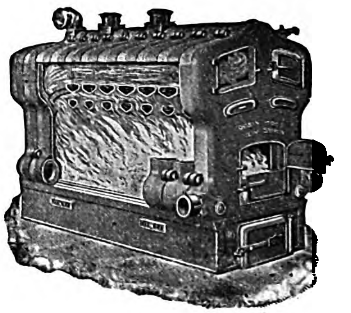

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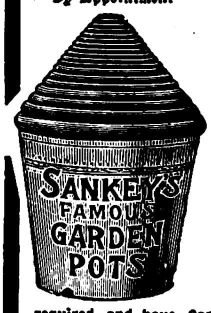

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Messrs. P. de Jager & Sons beg to announce that their Spring Catalogue has now been posted to all their Customers. Free copies may be had on application.

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Rhododendrons for Everyone

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There are few gardens so poor in the conditions required by Rhododendrons that it is impossible to include some of these lovely shrubs in the scheme of planting. Never before has the would-be grower of Rhododendrons had such a wealth of species and hybrids to choose from—and all the advice and assistance he requires will be found in the pages of Captain Kingdon Ward's fascinating book.

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Woolman's Culture of Chrysanthemums, 1/9.

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Twenty words (or three lines, including headline), **4s.,** *and* **1s.** *for every succeeding eight words (or line or portion thereof). Fee for having replies addressed to this office,* **1s.** *over and above the amount payable for* **all** *words appearing in the advertisement, including* **our own address.**

Gardeners writing to Advertisers of Vacant Situations are recommended to send them copies of testimonials only, retaining the originals. To part with original documents is to run a great risk of their being mislaid.

When addressing Box numbers, it is essential to give the **initials or pseudonym** *as well as the correct number of the Box.*

MUNICIPAL AND PUBLIC.

THE UNIVERSITY OF LEEDS.
DEPARTMENT OF AGRICULTURE.
APPOINTMENT OF LECTURER AND ORGANISER IN HORTICULTURE.

APPLICATIONS are invited for the above appointment. Applicants must give evidence of a sound training in practical horticulture and the sciences bearing thereon. A University Degree is desirable. Experience of teaching is essential. The salary offered will depend upon the attainments of the successful applicant but will not in any case exceed £500 per annum. Further particulars can be obtained from the REGISTRAR, The University, Leeds, who will receive applications up to 6th January, 1930.

9th December, 1929.

WANTED by Public Authority in the North of England, good MAN experienced in all branches of propagating, hard and soft wooded, used to bedding and general indoor work.

Age not to exceed 40 years.

Full particulars and conditions of appointment may be obtained on application to X. P. D., Box 23, 5, Tavistock Street, Covent Garden, W.C.2.

PRIVATE.

GARDENER, HEAD WORKING, wanted, two kept; wages 45/–, good cottage and garden.—Write, AGENT, Ireton Wood House Estate Office, Idridgehay, nr. Derby.

WANTED, GARDENER (single preferred), for Underwood, Bournemouth; must be well recommended and thoroughly capable of undertaking a small, up-to-date garden, where choice shrubs, rockery, herbaceous borders and bedding are a feature.—Apply, Particulars, COL. E. W. CRAWFORD, Estate Office, Horsley Hall, Gresford, nr. Wrexham, N. Wales.

WANTED, a thoroughly competent kitchen garden FOREMAN for a large garden in the midlands; must be able to keep up a constant supply of good vegetables; single man; wages 43/– per week, with good bothy and the usual privileges.—MIDLAND, Box 21, 5, Tavistock Street, Covent Garden, W.C.2.

TRADE.

WANTED, NURSERY FOREMAN, outdoor, good propagator. State experience, where gained, when disengaged, age, salary, preference single man, to NURSERY, Box 71, 5, Tavistock Street, Covent Garden, W.C.2..

DRAUGHTSMAN wanted for Landscape office in Canada. State experience, references and qualifications. Supplementary architectural training preferred.—LANDSCAPE, Box 16, 5, Tavistock Street, Covent Garden, W.C.2.

SITUATIONS WANTED

Twenty words **2s.,** *and* **6d.** *for every succeeding eight words or portion thereof. (Advertisements at this reduced rate are only accepted direct from gardeners and nursery employees). Fee for having replies addressed to this office,* **1s.** *over and above the amount payable for* **all** *words appearing in the advertisement including* **our own address.**

SUGGESTIONS FOR ADVERTISERS.

Before writing an advertisement, it is useful to look down the column and note the information contained in advertisements similar in character to your own. Important points which might otherwise escape the memory may thus be brought to mind.

Write the advertisement in the centre of a large piece of paper (for example, a whole sheet of writing paper laid out flat) leaving plenty of space at top and bottom. If the name and address are to be included in the advertisement, place them at the end; if a box number is to be used leave a generous space at the end of the advertisement, draw a line across the paper, and place the full name and address beneath the line.

No letter, or request for insertion is required, but in case of any doubt as to the proper classification the name of the section (such as "Situations Wanted, Trade") can be placed at the head of the advertisement. Such words will not be printed or charged for.

It is important to send the correct amount in payment, as any variation causes delay (see rates at the head of each section).

No acknowledgment or receipt is sent in connection with these advertisements, but if an extra 7d. is added to the correct amount, a copy of the paper containing the advertisement will be sent post free.

An advertisement received after Tuesday may not, or received after Wednesday cannot, be inserted the same week; but if fully paid, it will appear the following week, unless countermanded in the meantime.

Advertisers desiring their Advertisements repeated must give **full particulars.** *Name and address alone are not sufficient.*

PRIVATE.

SIR ALEXANDER MAGUIRE, Hoole Hall, Chester, can with the greatest confidence highly recommend his HEAD GARDENER, who has been with him five years; a first-class gardener of ability, experience and character; excellent manager and organiser; eighteen years Head last place; 36 years' practical experience in first-class establishments; highest references. — Estate sold.—Apply, F. E. HARE, as above.

HEAD GARDENER, private or otherwise; life experience all branches; used to large scale production on commercial basis. Landscape reconstruction. Recommended as good organiser and manager.—FLETCHER, Maidwell, Northampton.

HEAD GARDENER seeks re-engagement; life experience Inside and Out, excellent testimonials, recommended from past and present employer; age 46, married; disengaged.—WARREN, Godinton Park Gardens, Ashford, Kent.

MR. CHAPMAN, Crawley Court Gardens, Winchester, can confidently recommend C. EDWARDS as First JOURNEYMAN, Inside, in good establishment; age 24.

JOURNEYMAN, age 23, requires situation, Inside and Out, or Outside Lead; 7 years' experience, good references. Please state wages; bothy, etc.—Apply, J. GRANT, Westside, Greeness, Turriff, Aberdeenshire.

MR. F. CAPP, Nostell Priory Gardens, Wakefield, can highly recommend a good JOURNEYMAN for Inside in large place, south country.

TRADE.

MAN, single, disengaged, used assisting with Tomatoes, Chrysanthemums, forced bulbs, etc., seeks work.—6, Charles Street, Hillingdon Heath, Middlesex.

THE

GARDENERS' CHRONICLE

Scale of Charges for Advertisements.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

TUESDAY, 5 p.m.

	Ordinary positions.	Facing reading matter or on back cover.
Page	£12 0 0	£15 0 0
½-Page	6 0 0	7 10 0
¼-Page	3 0 0	3 15 0
Column	4 0 0	5 0 0
½-Column	2 0 0	2 10 0
Per inch, single column	8 0	10 0
Per inch, across 2 columns	16 0	1 0 0
Per inch, across 3 columns	1 4 0	1 10 0

SMALL ADVERTISEMENTS, including Situations Vacant, classified, payable in advance:—

First 3 lines (not exceeding 20 words)	4 0
Per line or part line (up to 8 words) after	1 0

FRONT COVER (no display allowed)—

Per line space (headline counted as two lines, minimum 8/–)	2 0

SITUATIONS WANTED—

First 3 lines (not exceeding 20 words)	2 0
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(Advertisements at this Special Rate are payable in advance, and are only accepted direct from Gardeners, etc.)

DISCOUNTS, &c.

On front cover advertisements no discounts are allowed. On a series of other advertisements, if ordered in advance, and all of the same size, they are allowed as follows:—

For three insertions, 5%; seven, 7½%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%.

All series must be arranged to attain completion within twelve months.

Advertisers may have replies to their advertisements addressed to THE GARDENERS' CHRONICLE Office.

A fee of 1s. is charged for this service, and initials, Box number, and our own address must also be included in the number of words paid for.

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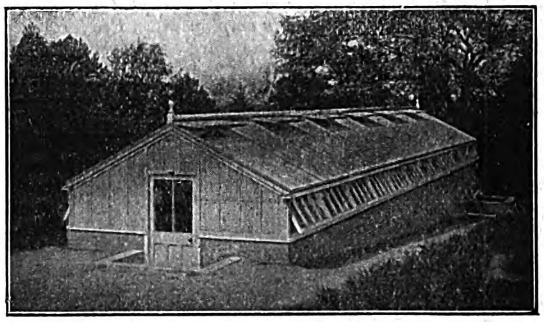

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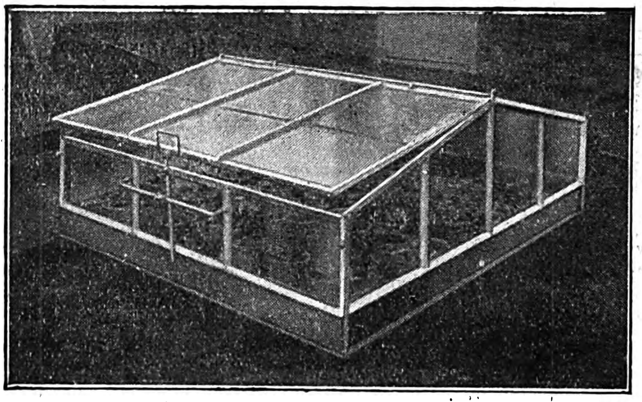

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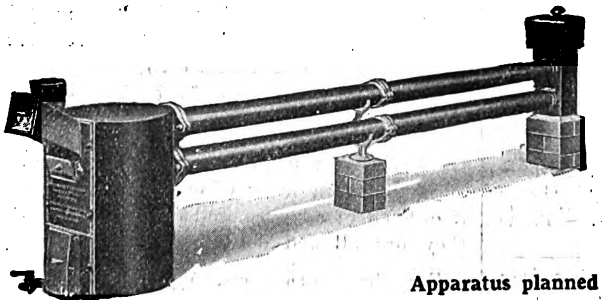

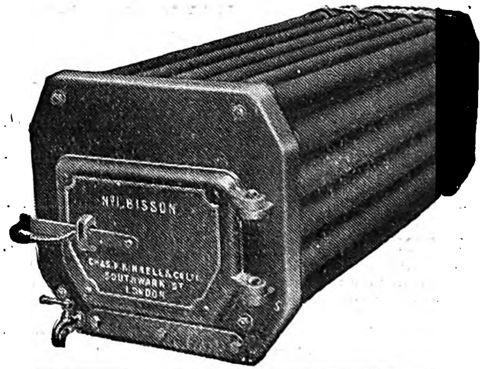

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